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**National Highway
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ACCIDENT RESEARCH GROUP

Calspan Corporation
[redacted] New York [redacted]

CALSPAN ON-SITE AIR BAG DEPLOYMENT INVESTIGATION

CALSPAN CASE NO. 93-8

VEHICLE #1 - 1991 CHEVROLET CORSICA LT (AIR BAG-EQUIPPED)
LOCATION - CITY OF [redacted] SOUTH CAROLINA
CRASH DATE - [redacted], 1992

Contract No. DTNH22-93-P-07394

Prepared for:

U.S. Department of Transportation
National Highway Traffic Safety Administration
Washington, D.C. 20590

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The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points are coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems.

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 93-8	*2. Government Accession No.*	*3. Recipient's Catalog No.*
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15. Supplementary Notes
On-site investigation of an air bag deployment crash that resulted in fatal injuries to an unbelted 37 year old female driver.

16. Abstract

A single vehicle run-off roadway crash occurre[redacted] 1992, at 11:35 a.m. in the [redacted] South Carolina. A 1991 Chevrolet Corsica LT equipped with a driver's side air bag was traveling south on a two lane, two-way, rural icy\wet asphalt roadway when it departed the right side of the roadway, entered a drainage ditch and struck the open end of a driveway culvert concrete drainage pipe measuring 40.6 cm (16.0") in diameter. The vehicle sustained direct contact damage to the lower right frontal area resulting in a CRASH computed delta V of 26 km\h (16 mph). The 37 year old female driver who was 151.5 cm (62.0") tall and weighed 59 kg (130 lbs.) was not wearing the available 3-point manual lap and shoulder belt at the time of the crash and came within close proximity to the air bag module cover at the time of the air bag deployment sequence. The air bag module flaps and air bag contacted the driver's neck and upper torso which resulted in a hyperextension of her neck. She was thrust rearward into the seat back rest and rebounded back into the inflated air bag. Her head and upper body came to rest on the right front seat cushion and her lower body remained situated in the driver seat area. Her injuries included: a laceration of the brainstem (AIS-6); a basilar skull fracture (AIS-3) which extended into the occipital bone (AIS-2); laceration and abrasion of the neck (AIS-1); and contusions of the chest, chin, and left cheek (AIS-1). The driver was DOA at the scene and subsequently transported to a local medical facility for radiographic evaluation.

An eight year old female sitting in the right front passenger seat was also unrestrained and subsequently contacted the windshield and instrument panel. She sustained minor soft tissue injuries of the face and right knee and was transported to a local medical facility where she was treated and released.

17. Key Words Supplemental Inflatable Restraint (SIR) System Air bag module cover Right frontal impact Delta V 26 km\h (16 mph) AIS-6 level injury	*18. Distribution Statement* General Public

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CALSPAN AIR BAG DEPLOYMENT INVESTIGATION

CALSPAN CASE NO. 93-8

VEHICLE - 1991 CHEVROLET CORSICA LT

LOCATION - CITY OF [redacted] SOUTH CAROLINA

SUMMARY

A single vehicle run-off roadway crash occurred [redacted] 1992, at 11:35 a.m. in the City of [redacted] South Carolina. A 1991 Chevrolet Corsica LT equipped with a driver's side air bag was traveling south on a two lane, two-way, rural asphalt roadway when it departed the right side of the roadway, entered a drainage ditch and struck the open end of a driveway culvert concrete drainage pipe which measured 40.6 cm (16.0") in diameter. The air bag deployed upon impact with the culvert resulting in fatal injuries to the 37 year old female driver. The driver was not wearing the available 3-point manual lap and shoulder belt at the time of the crash. The driver was pronounced dead at the scene and subsequently transported to a local medical facility for radiographic evaluation.

An eight year old female sitting in the right front passenger seat was also unrestrained and subsequently contacted the windshield and instrument panel. She sustained minor soft tissue injuries of the face and knees and was transported to a local medical facility where she was treated and released.

Events preceding the crash involved confounding factors of climate conditions, roadway geometry, and driver distraction. The ambient weather condition was reported by the police as sleet with the roadway described as icy and wet. On-scene photographs taken shortly after the crash indicated the roadway was wet and snow covered/slushy (see photograph #15). The horizontal roadway alignment involved a right curve segment which changed to a straight section approximately 34.0 m (111.3') prior to point of roadway departure and 56.3 m (187.5') prior to the point of impact (POI) with the culvert. The radius of curvature measured at the transition point was 375.2 m (1250.5'). The driver was distracted by her daughter who reportedly released her lap and shoulder belt prior to the crash. The driver was allegedly in the process of reattaching the belt when the vehicle departed the roadway.

The driver was apparently very familiar with the roadway as the crash occurred 43 m (81') north of the intersection with her residential street. Her residence was approximately 90 m (300') east of the intersection.

The vehicle was exiting the right curve and was proceeding along the straight tangent section when it exited the roadway to the right. Tire mark evidence on the roadway and grass

shoulder (i.e., displacement of slush and sod) observed in on-scene photographs taken indicated the vehicle was tracking while traveling in a clockwise trajectory (refer to photograph #7). The sod appeared to be displaced in the direction of vehicle travel which was indicative of driver braking.

The vehicle descended a negative 11 degree cross slope grass shoulder area and struck the open end of a concrete drainage pipe with the lower right frontal plane. This contact resulted in the rearward displacement of the lower valence panel/air dam, lower radiator support bracket (i.e., just below the rear edge of the front bumper) and both engine frame rails (refer to photographs #21, #24, and #29). The vehicle continued 0.9 m (3.0') and came to final rest position (FRP) with the same heading angle as the impact angle which was estimated at 15 degrees relative to the roadway edge line. The undercarriage of the vehicle remained in contact with the culvert at FRP.

The driver's seat was located one notch rearward from the full forward position [i.e., 2.5 cm (1.0") rearward of full forward]. This placement appeared to be consistent with the driver's physical height stature of 151.5 cm (62") and an on-scene photograph (see photograph #62) which shows the leading edge of the seat cushion to be in the forward position. It should be noted, however, there was a five month lag time between the time of the crash and this inspection in which the vehicle was reportedly stored in a secured tow yard. Although there is a reasonable presumption the seat was still in the original at crash position, it is not known with certainty if it was changed prior to this inspection.

During the pre-crash event, the driver's upper body moved forward and was in close proximity of the air bag module cover at the time of the vehicle impact. The air bag module cover opened in the typical "H" pattern configuration and subsequently contacted the driver's neck. The driver's neck was then hyperextented by the combination of the air bag module flaps and the deploying air bag resulting in a burst laceration of the anterior aspect of the neck, a fracture of the basilar skull which extended into the occipital bone, and a laceration of the brainstem. The driver's body was thrust back into the seat back rest where it probably rebounded back into the inflated air bag.

The driver's upper body then moved rearward and slumped to the right across the center console and right front seat cushion in response to gravitational forces generated by the attitude of the vehicle at the final rest position. The right side of her head was resting on the right front seat cushion facing forward with the right arm outstretched toward the right front door surface and situated under her head. Her lower body remained in the driver seat with her hips and thighs located on the right side of the driver's seat cushion with her knees near the instrument panel between the steering column and console. Her right foot appeared to be resting on the floor pan and the left foot positioned diagonally toward the left side kick panel (refer to photographs #61 and #62).

The right front passenger moved forward and contacted the instrument panel with her knees and windshield with her head which resulted in a 7.6 cm (3.0") by 6.4 cm (2.5") tear of the windshield laminate. She sustain an avulsion, abrasions, and contusions of the forehead and an avulsion and contusion of the right knee. Witnesses (residents of the area) found the

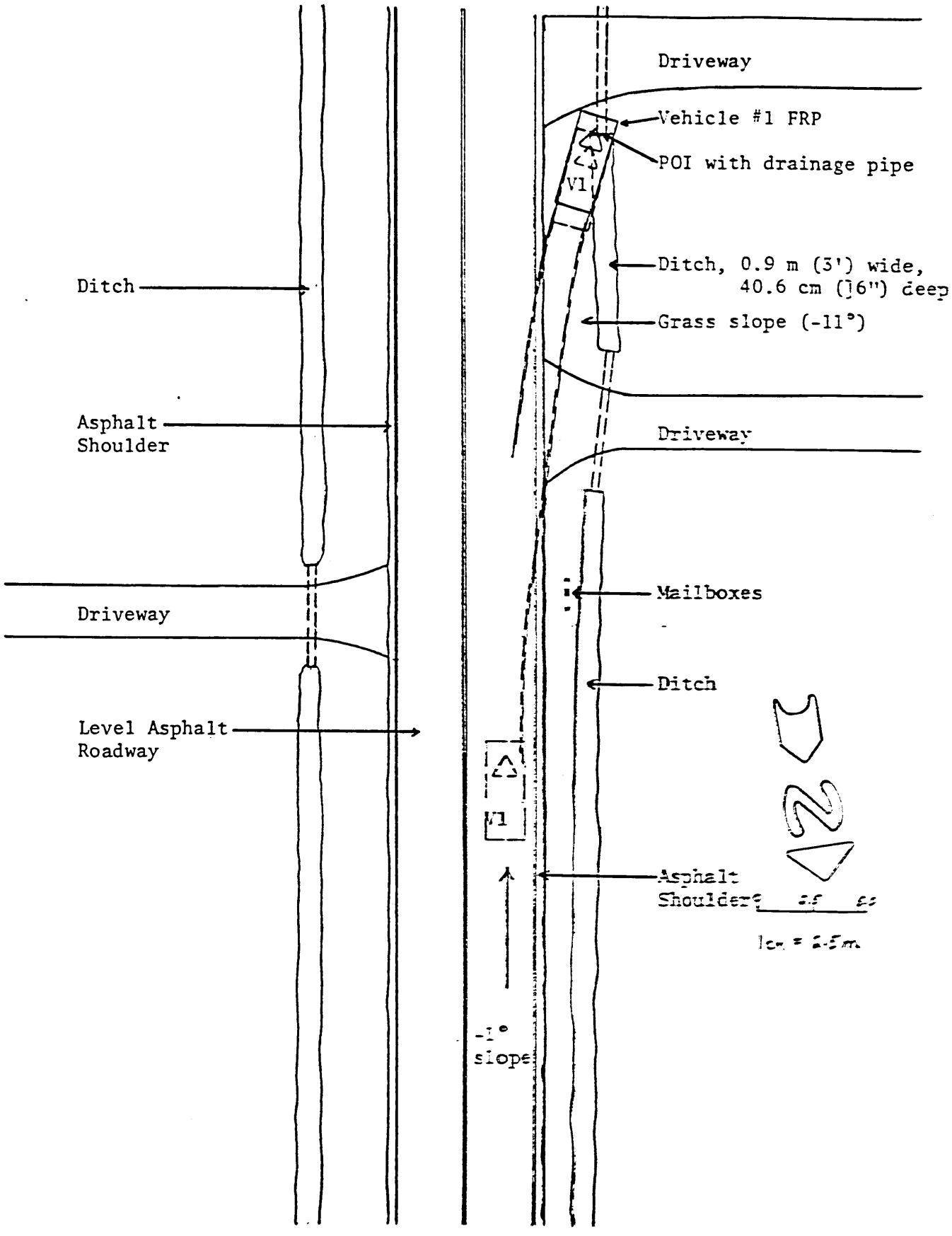
passenger in the rear seat area covered in bodily fluid and assisted her in exiting the vehicle through the left rear door. She was reportedly walking around in the roadway and acknowledging the demise of her mother.

The resident closest to the crash scene responded within seconds of the crash and ran out to the vehicle. He described the driver's position as laying across the right front seat with hips still on the driver's seat. He indicated there was no signs of life and surmised the driver had deceased. According to the witness, the engine continued to run with driver wheels stationary. While reaching in the vehicle to turn off the ignition switch, he smelled an acrid odor and saw some powder on the air bag. He observed the air bag was deflated.

Rescue personnel responded to the emergency call and arrived on scene within eight minutes after notification. It was the opinion of rescue personnel after checking for vital signs the driver had expired. The County Coroner's office was subsequently notified and the Coroner arrived fifty-two minutes after the crash. The body was pronounced DOA at the scene and transported to an area medical center. The passenger was transported to the same medical center where she was treated and released.

CRASH SCENE SCHEMATIC

Calspan Case 93-8



CRASH DATA

Location:	2 lane undivided state highway
City/Township:	[redacted], South Carolina
Area/Type:	Rural/residential
Accident Date/Time:	[redacted], 1992, 11:30 a.m.
Investigating Police Agency:	[redacted] State Police
Accident Type:	Single vehicle run-off road and strikes an object (driveway culvert drainage pipe)
Air Bag Vehicle Driver Injury Severity:	Fatal (AIS-6)

AMBIENCE

Viewing Conditions:	Daylight
Weather:	Snow/sleet/rain
Road Surface:	Icy/wet

HIGHWAY

Type:	State highway
Number of Lanes:	2
Width:	6.1 m (20.3')
Surface:	Asphalt
Median:	None
Edge:	West edge - 0.5 m (1.7') asphalt East edge - 0.4 m (1.3') asphalt
Vertical Alignment:	Level

Horizontal Alignment:	Straight preceded by a right curve with a 375.2 m (1250.5') radius of curvature
Estimated Coefficient of Friction:	0.2
Traffic Density:	Light

TRAFFIC CONTROLS

Signals:	None
Signs:	None
Markings:	Full barrier yellow center lines and solid white road edge lines
Speed Limit:	88.5 kph (55.0 mph)

VEHICLE DESCRIPTION

Description:	1991 Chevrolet Corsica LT, 4 door sedan
V.I.N.:	1G1LT53G3MY (production number deleted)
Color:	White
Odometer:	56,528 km (35,126 miles)
Engine:	4 cylinder, 2.2 L
Transmission:	3 speed automatic
Steering:	Power
Brakes:	Power assisted front disc and rear drum brakes
Padding:	Upper and mid instrument panel, soft edge steering wheel rim and air bag module cover, door panels, door arm rests, center console arm rest, seats, roof liner, sunvisor
Active Restraints:	3-point lap and shoulder belts in the four outboard seating positions, 2-point lap belt in center rear seat

Passive Restraints:	Driver's side air bag Supplemental Inflatable Restraint (SIR) system that deployed as a result of the culvert impact
Defects:	None
Tow Status:	Towed due to damage

VEHICLE DAMAGE

Exterior:

The right frontal plane of the 1991 Chevrolet Corsica LT impacted an open end of a 40.6 cm (16.0") drainage pipe which was designed to channel water under a residential driveway. Direct contact began 2.5 cm (1.0") right of the vehicle's centerline and extended 40.6 cm (16.0") toward the right front corner. The impact displaced the entire frontal structure rearward resulting in a combined direct and induced damage length of 135 cm (53"). Crush values obtained along the front bumper and along the lower radiator support frame member are listed below:

Bumper Crush:	C_1 = 1.3 cm (0.5")	C_4 = 0.60 cm (0.25")
	C_2 = 1.3 cm (0.5")	C_5 = 1.90 cm (0.75")
	C_3 = 0	C_6 = 0
Lower Radiator:	C_1 = 9.4 cm (3.7")	C_4 = 31.8 cm (12.5")
	C_2 = 10.2 cm (4.0")	C_5 = 21.6 cm (8.5")
	C_3 = 19.3 cm (7.6")	C_6 = 12.7 cm (5.0")

Components damaged in the crash included the front bumper, lower valence/air dam, radiator support bracket, radiator, both frame rails, grille panel, and windshield. The engine frame rails were displaced rearward with the right rail moved 11.4 cm (4.5") rearward and the left rail 2.5 cm (1.0") rearward. The right wheelbase was reduced by 2.3 cm (0.9"). The front bumper energy absorption devices (EAD) compressed during the crash with 1.6 cm (0.6") of stroke noted on the right side and 1.0 cm (0.4") of stroke on the left side. Both EADs returned to full restitution at 11.4 cm (4.5").

CDC: 12 - FZLW-2

Repair Cost: Police accident report listed damage at $1,000 (this figure appeared to be under representative for the extent of vehicle damage).

Interior:

Interior damage to the Chevrolet Corsica LT was associated with air bag deployment and occupant contacts. The air bag module cover opened along the designed seam lines in the typical "H" pattern configuration. A tissue transfer was noted on the upper flap along the horizontal parting seam line which began at the lower right corner and extended laterally 7.6 cm (3.0") to the left (refer to photograph #46 and slide #43). The manufacturer's insignia on the lower flap was located 3.2 cm (1.25") down from the upper right corner of the flap and 4.1 cm (1.6") left of the right vertical seam. Hair fibers associated with the driver's hair were wedged in the bottom corner of the insignia.

The air bag had a 12.7 cm (5.0") diameter light brown transfer associated with tissue transfer from the driver's neck and upper torso. The center the contact was located approximately 11.4 cm (4.5") from the center of the bag in the right upper quadrant near the vertical centerline of the bag (refer to photograph #43 and slides #39 - #42). A large bodily fluid transfer which measured 23 cm x 10 cm (9" x 4") was located in the bottom left quadrant may have been the result of contact by the passenger during post impact egress activities.

At the beginning of the vehicle inspection, the position of the steering wheel was noted in 100 degrees counter clockwise position. This position appeared consistent with on-scene photographs of the vehicle interior. The rotation probably occurred as a consequence of the impact with the drainage pipe and accentuated by the interaction of the right front tire with the side of the ditch.

The steering column shear capsules were totally separated from the shear plate with 2.5 cm (1.0") of separation and the steering column EAD was compressed 1.90 cm (0.75"). Photographs #50 - #52 illustrate these displacement dimensions. The column displacement resulted from the combined forces generated by the forward movement of the unrestrained driver and the interaction of deploying air bag with the driver.

The roof liner fabric was abraded above the right front passenger's seat. This area measured 12.7 cm by 14.0 cm (5.0" x 5.5") and was located 17.8 cm (7.0") right of the vehicle centerline. The abraded mark also appeared to have a bodily fluid stain which was attributed to contact by the right front occupant during egress activities.

The left side of the right front seat back rest and seat cushion were marked by emesis which may have been transferred from the right front occupant's clothing as she was climbing between the front seats. The emesis on the seat back rest mark was located 15.2 cm (6.0") right of the centerline and 48.3 cm (19.0") above the seat cushion.

The windshield laminate directly in front of the right front passenger's seat was torn by the right front passenger's head contact. The pattern of the tear resembled an inverted "V" with the right side tear measuring 7.6 cm (3.0") in length and the left side measuring 6.4 cm (2.5"). This contact was located 34.2 cm (13.5") right of centerline and 34.2 cm (13.5") above the upper edge of the mid-instrument panel.

A smudge mark attributed to the passenger's upper torso was noted on the upper edge of the mid-instrument panel below the windshield. A bodily fluid transfer on the right sunvisor located 36.6 cm (14") right of the centerline was attributed to post-impact contact by the right front passenger. She was described by witnesses as covered with bodily fluid and found in the rear seat area.

Air Bag System:

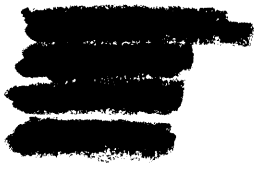
The 1991 Chevrolet Corsica LT was equipped with a driver's side air bag Supplemental Inflatable Restraint (SIR) system that deployed as designed. Components of the SIR were not damaged by vehicle deformation or driver contact.

Air bag system performance data retrieved from the Diagnostic Energy Reserve Module Electrically Erasable Programmable Read Only Memory (DERM EEPROM) during the vehicle inspection indicated the system performed within design specifications. According to the vehicle manufacturer, the DERM tape verified there were no previous or active fault codes and the warning air bag warning lamp was off at the time of the crash (indicating no pre-crash problems). They also reported that the discriminating sensor closed 52 milliseconds after the arming sensor which was described as a little longer closure time interval than a barrier equivalent test interval of 30 milliseconds. However, this longer time interval was reportedly not considered an outlandish reaction time. A copy of the DERM EEPROM data tape is included under Appendix C. The forward discriminating sensor located on the underside of the top radiator support bracket in front of the radiator was undamaged (refer to photograph #28).

The air bag module cover opened in the typical "H" configuration during the deployment sequence along the designated tear seam lines. The vertical length of the upper module flap measured 7.6 cm (3.0") and the lower module flap measured 7.00 cm (2.75"). The lateral width of the flaps measured 17.8 cm (7.0") along the common seam line between the upper and lower flap. The manufacturers insignia embossed in the upper right corner of the lower flap measured 3.20 cm by 1.3 cm (1.25" x 0.5") as seen in photograph #45. The flap thickness measured 0.30 cm (0.13").

A tissue transfer located along the lateral seam line of the upper module flap began at the bottom right corner and extended 7.6 cm (3") to the left. This was attributed to contact with the driver's neck during the air bag deployment sequence. Strands of hair associated with the driver's head were observed wedged in the lower right corner of the Chevrolet insignia. This was attributed to contact by the lower flap during the deployment sequence.

The air bag was a non-tethered design with two 1.3 cm (0.5") exhaust vent ports located at the 3 o'clock and 9 o'clock positions. The circumferential edge of the bag was stitched with a finished seam. The diameter of the bag measured 61 cm (24") and was stamped with the following identification codes:



The air bag surface had a 12.7 cm (5.0") diameter light brown tissue transfer in the upper right quadrant which was located 11.4 cm (4.5") from the center of the air bag. This transfer was attributed to contact with the driver's neck area during the air bag deployment sequence (refer to photograph #43 and slides #39 - #42). A large striated red area which measured 23 cm x 10 cm (9" x 4") located in the left bottom quadrant may have been the result of bodily fluid deposit by the right front passenger during post impact egress activities.

Vehicle Velocity Estimates:

Travel Speed:	72.4 km/h (45.0 mph) estimated by police
Impact Speed:	30 km/h (19 mph)
Total Delta V:	26 km/h (16 mph)
Longitudinal Delta V:	-26 km/h (-16 mph)
Lateral:	0 km/h (0 mph)
Energy Absorption:	34,742 joules (25,621 ft.lb.)

The impact speed and velocity changes were computed by the damage and trajectory algorithms of the CRASHPC program.

Collision Sequence:

Pre-Crash:

The driver of the 1991 Chevrolet LT was traveling south on the two lane rural roadway when she apparently lost control of the vehicle on an icy roadway following a horizontal roadway alignment change from a right curve to a straight segment. It appeared the driver applied the brake while the vehicle traveled in a clockwise trajectory and traversed a negative 11 degree cross slope grass prior to impact with the drainage pipe.

Crash:

The right front bumper and lower valence panel/air dam area contacted the upper leading edge of the 41 cm (16") diameter drainage pipe. Impact speed was computed at 30 kph (19 mph) by the damage and trajectory algorithm of the CRASHPC program. The front bumper crushed to a maximum depth of 1.9 cm (0.75") at the C_5 location. The substructure behind the lower valence panel which included the lower radiator support bar realized a greater crush pattern than the front bumper. This support bar was displaced rearward a maximum depth of 31.8 cm (12.5") at the C_4 location. This resulted in a computed velocity change of 26 kph (16 mph).

As the vehicle crushed to maximum engagement, both frame rail ends were displaced laterally inward with a longitudinal displacement of 11.4 cm (4.5") for the right frame rail end and 2.5 cm (1.0") for the left frame rail end (refer to photographs #29 and #30). The air bag deployment sequence initiated during this contact sequence.

Following maximum engagement with the culvert, the vehicle overrode the drainage pipe as noted by black undercarriage transfer marks on the top surface of the pipe as shown in photographs #11 and #12. It continued to final rest position (FRP) approximately 0.9 cm (3.0') from the POI.

Post Crash:

Final Rest - the vehicle came to final rest in a southwesterly direction at a 15 degree heading angle relative to the roadway edge line. The undercarriage of the vehicle remained in contact with the culvert. The right front tire was rotated in a 15 degree counterclockwise position with the side plane of the tire furrowed into the side of the ditch.

Driver Activities - The driver was pronounced DOA at the scene. Her upper body was slumped to the right with her face resting on top of her right arm which was extended straight out toward the right door surface. Her hips were situated on the right side of the driver's seat cushion with her knees located near the lower instrument panel just right of the steering column and left of the center console. Her right foot appeared to be resting on the floor pan and the left foot positioned diagonally toward the left side kick panel. It appeared to the witnesses that cessation of life was immediate.

Police Activities - An investigating officer from the [redacted] arrived on scene forty-seven minutes after the crash.

Rescue Activities - An ambulance was dispatched and arrived on the scene approximately eight minutes after the crash. Rescue personnel checked for vital signs and reported the driver was unconscious with no respiration or pulse. The [redacted] Office was subsequently notified.

The [redacted] arrived on-scene fifty minutes after the accident and pronounced the driver DOA at scene. A limited number of photographs showing the driver's final rest position in the vehicle were taken by the Coroner prior to removal (refer to photographs #61 and #62). The driver's body was subsequently transported to a local medical center where two lateral X-ray images were obtained of the skull and cervical spine.

Although an autopsy was not performed on the driver, the [redacted] indicated the driver sustained a hangman's fracture (i.e., fracture of the second cervical vertebra). This finding was subsequently ruled out by a medical consultant who evaluated the two X-ray films and determined there were no fractures of the cervical vertebrae. The County Coroner indicated his findings were based solely on visual observations where the free movement of the head and neck appeared to be symptomatic of a hangman's fracture.

Scene Clearance - Following investigation by the police and coroner, the vehicle was towed from the scene by a local towing service and stored in a tow yard pending this investigation.

Human Factors/Occupant Data

	Driver	Right Front Passenger
Age/Sex:	37 year old female	8 year old female
Height:	151.5 cm (62.0")	unknown
Weight:	59 kg (130 lbs.)	29.5 kg (65.0 lbs.)
Manual Restraint System Usage:	Not wearing available 3-point lap and shoulder belt system	Not wearing available 3-point lap and shoulder belt system
Usage Source:	Vehicle inspection, Police Report, Coroner's Investigation Report	Vehicle inspection, Police Report, Coroner's Investigation Report
Eyewear:	Corrective lens required, unknown if worn at time of crash	None

Vehicle Familiarity:	Unknown, vehicle purchased from a previous owner (a rental car agency)
Route Familiarity:	It was assumed the driver was very familiar with the roadway as the accident occurred approximately 115 m (383') prior to her residence.
Trip Plan:	At the time of the crash, the driver was traveling from the city toward her residence.
Type of Medical Treatment:	Transported to a local medical center [approximately 21 km (13 miles) from the crash scene] for post mortem investigative documentation activities which included photographs of the victim (refer to photographs #63 - #65) and two lateral radiographic views of the driver's skull and cervical vertebrae.

Injury Data

Following the crash, the driver was transported to a medical facility where a cursory evaluation of injuries was conducted. This evaluation included two lateral radiographic views of the victims head and neck and photographs of the victim which concentrated on the victim's upper body (refer to photographs #63 -#65). An autopsy to determine the cause of death was not performed.

The [redacted] report indicated the driver sustained a hangman's fracture (i.e., fracture of the second cervical vertebra) and a basilar skull fracture. A medical consultant retained for this case ruled out the hangman's fracture citing no radiological evidence to support this diagnosis.

During the review of these X-rays, the medical consultant noted that the basilar skull fracture extended into the occipital bone and aligned with the location of the brainstem in the vicinity of the midbrain. From photographs of the victim, radiographs, and especially the timeliness of death (i.e., immediate cessation of life), he concluded the victim most likely sustained a tear or laceration of the brainstem. In his opinion, this resulted from either an impact of the head on an interior surface of the vehicle or a hyperextension of the neck from the air bag contact. He also noted that despite there being no radiographic evidence of vertebral injury, a high spinal cord injury could have resulted from the forceful hyperextension of the victim's neck in association with an undetected fracture or in the absence of a bony injury.

DRIVER INJURIES	SEVERITY (OIC/AIS)	SOURCE
Laceration of the brainstem in the region of the midbrain	140212.68	Air bag
Basilar skull fracture and fracture of the occipital bone, the fracture extends to the base of the skull and clivus and fracture line	150200.38 150400.26	Air bag
Laceration of the neck	390602.15	Upper and lower flaps of the air bag module and air bag
Abrasion of the neck	390202.15	Upper and lower flaps of the air bag module and air bag
Contusions of upper bilateral chest	490402.10	Air bag

DRIVER INJURIES (continued)	SEVERITY (OIC/AIS) (continued)	SOURCE (continued)
Contusion of the left cheek	290402.12	Air bag
Contusion of the chin (underside)	290402.18	Upper air bag module flap and air bag

The right front occupant was transported from the scene to the medical facility where she was treated an released for minor injuries. These minor injuries included: an avulsion, abrasion, and contusions of the forehead as a result of contact with the windshield; an avulsion and contusion of the right knee from the instrument panel; and a contusion of the right femur from the instrument panel.

OCCUPANT INJURIES	SEVERITY (OIC/AIS)	SOURCE
Avulsion of the forehead	290800.17	Windshield
Contusions of the forehead	290402.17	Windshield
Abrasion of the forehead	290202.17	Windshield
Avulsion of the right knee	890800.11	Instrument panel
Contusion of the right knee and right femur	890402.11	Instrument panel

OCCUPANT KINEMATICS

The driver of the 1991 Chevrolet Corsica LT was driving with the seat adjusted 2.5 cm (1") rearward from the full forward position with the seat back rest 45.7 cm (18") rearward from the post impact position of the steering wheel hub. The tilt wheel was adjusted in the center tilt position.

Just prior to the crash, the driver was distracted by the right front passenger, who reportedly removed her lap and shoulder restraint belt. The driver was reportedly attempting to reattach the belt as the vehicle was traveling in a right curve.

The vehicle began to slide on the ice/slush covered roadway and depart the right side of the roadway in a clockwise travel path when the driver applied the brakes. As the vehicle exited the roadway, the driver in addition to applying the brakes may have attempted to restrain the occupant by pushing back on the passenger with her right arm. The driver moved forward and came in close proximity of the air bag module cover at the time of the air bag

deployment sequence.

The upper and lower flaps of the air bag module cover opened and contacted the driver's anterior aspect of the neck and the underside of the chin resulting in abrasions (refer to photographs #63-#65). The driver then sustained a forceful hyperextension of the neck by the air bag which resulted in a horizontal burst laceration of the neck, basilar skull/occipital bone fractures and a brainstem laceration.

The driver was thrust rearward and contacted the seat back rest. She rebounded and contacted the lower instrument panel with her left knee which was noted by a 20.3 cm x 3.8 cm (8.0" x 1.5") scuff mark located 48.3 cm (19.0") left of the vehicle centerline (refer to photograph #47). She then contacted the inflated air bag a second time with her upper body and subsequently moved rearward and to the right as the result of the vehicle's final rest attitude (i.e., canted to the right along the ditch slope). The driver's body slumped to the right across the center console with the right side of her head coming to rest on the right front seat cushion facing forward. The driver's right arm was outstretched toward the right front door surface and situated under her head. Her lower body remained in the driver seat with her hips and thighs located toward the right side of the driver's seat cushion with her knees near the instrument panel between the steering column and console. Her right foot appeared to be resting on the floor pan and the left foot positioned diagonally toward the left side kick panel (refer to photographs #61 and #62).

The right front passenger was sitting on the seat cushion and moved straight forward striking her knees on the lower instrument panel. Her head contacted the windshield resulting in a typical spider web pattern and producing an inverted "V" tear in the laminate. She rebounded back toward her seat and may have come in contact with her mother and emesis on the seat cushion. The passenger climbed into the rear seat area between the front seat back rest and most likely contacted the right sunvisor and roof during this activity. Additionally, emesis noted on the left side of the right front seat back rest may have been transferred from the passenger's clothing during her egress activity. She was assisted from the vehicle through the left rear door by local residents.

SELECTED PHOTOS

SCI Case 93-8

1. Trajectory of the 1991 Chevrolet Corsica LT as it was traveling southbound - 90 meters (300') prior to the point of impact (POI).

2. Pre-crash trajectory - 75 meters (250') prior to the POI.

3. Pre-crash trajectory - 60 meters (200') from POI.

4. Pre-crash trajectory - 45 meters (150') from POI.

5. Pre-crash trajectory - 30 meters (100') from POI.

6. Pre-crash trajectory - 15 meters (50') prior to the POI.

7. On-scene pre-crash trajectory 15 meters (50') prior to the POI.

8. Pre-crash trajectory - 10 meters (33') prior to the POI.

9. View of driveway culvert along ditch line.

10. View of driveway culvert at the POI.

11. Close-up view of driveway culvert with yellow calibrated inch tape installed and depicting the overall pipe diameter of 40.6 cm (16.0").

12. Overhead close-up view of driveway culvert showing black transfer marks from the vehicle's undercarriage.

13. Reverse view of vehicle's trajectory along ditch line.

14. Look back view of the vehicle's trajectory at the final rest positive (FRP).

15. On-scene reverse view of the vehicle's FRP.

16. Lookback view showing the 11 degree (19 percent) roadside cross slope.

17. On-scene look back showing vehicle departure tire marks in the slush and grass shoulder.

18. Look back along the vehicle's travel lane south of the FRP.

19. Lookback showing the lateral distance between the roadway edge line and the ditch 7.5 meters (25.0') south of the POI.

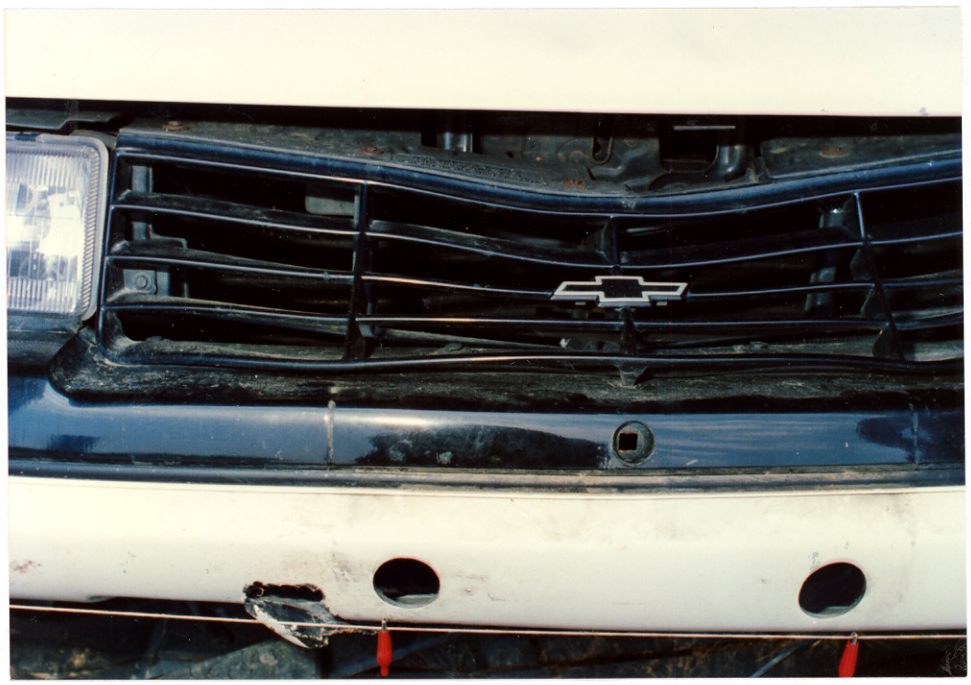
20. Reverse view of vehicle's travel lane approximately 40 meters (133') south of the POI and showing the intersection of the driver's residential roadway.

21. Overall view of the 1991 Chevrolet Corsica's frontal plane showing contact damage to the bumper and lower valence panel.

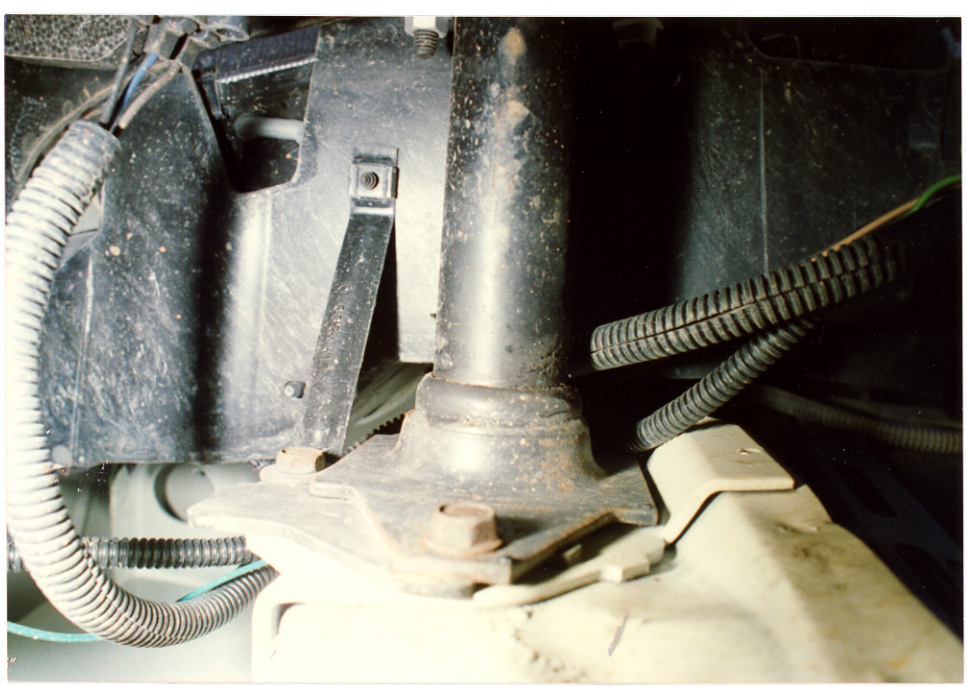
22. Right half of the vehicle's frontal plane highlighting contact on the bumper.

23. Close-up of contact damage on the bumper and lower valence panel.

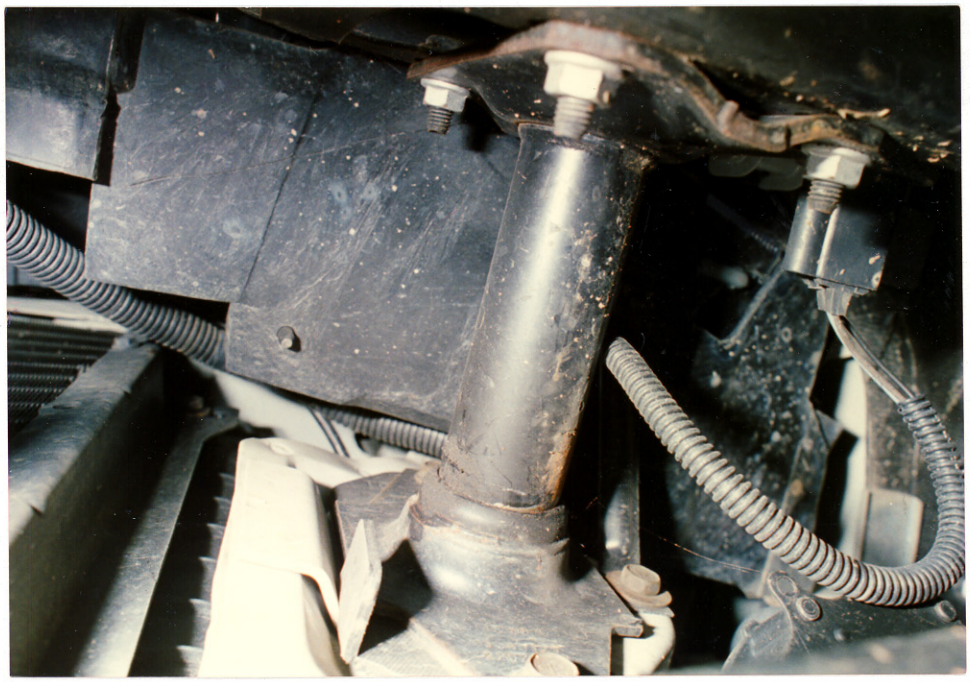
24. Close-up of the lower valence panel and radiator highlighting the contact pattern consistent with the driveway culvert design and dimension.



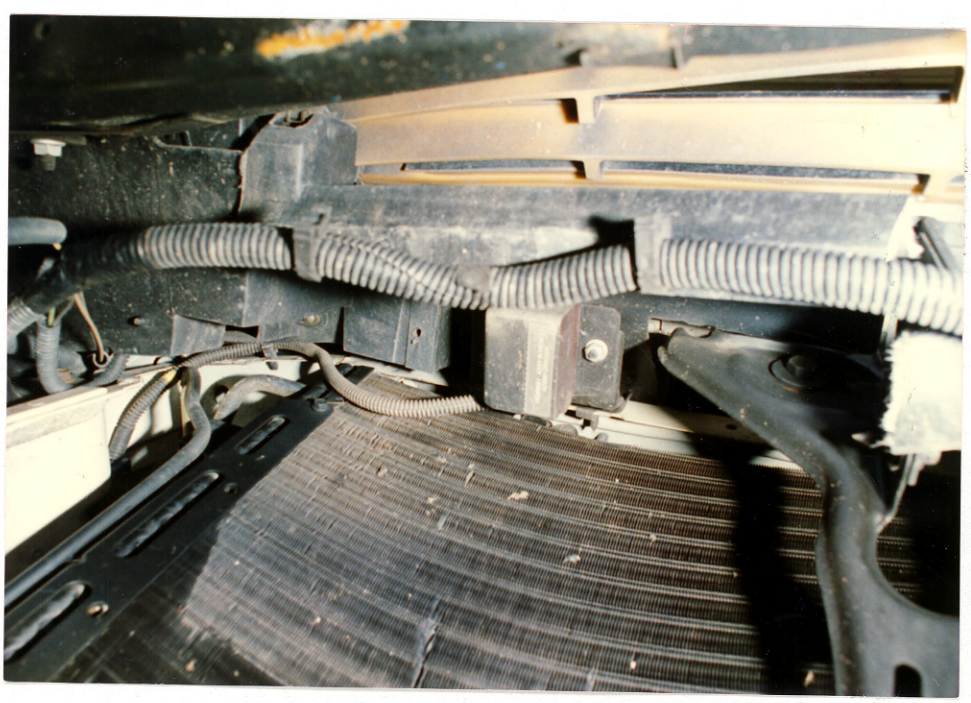
25. View of the center grille area and front bumper.



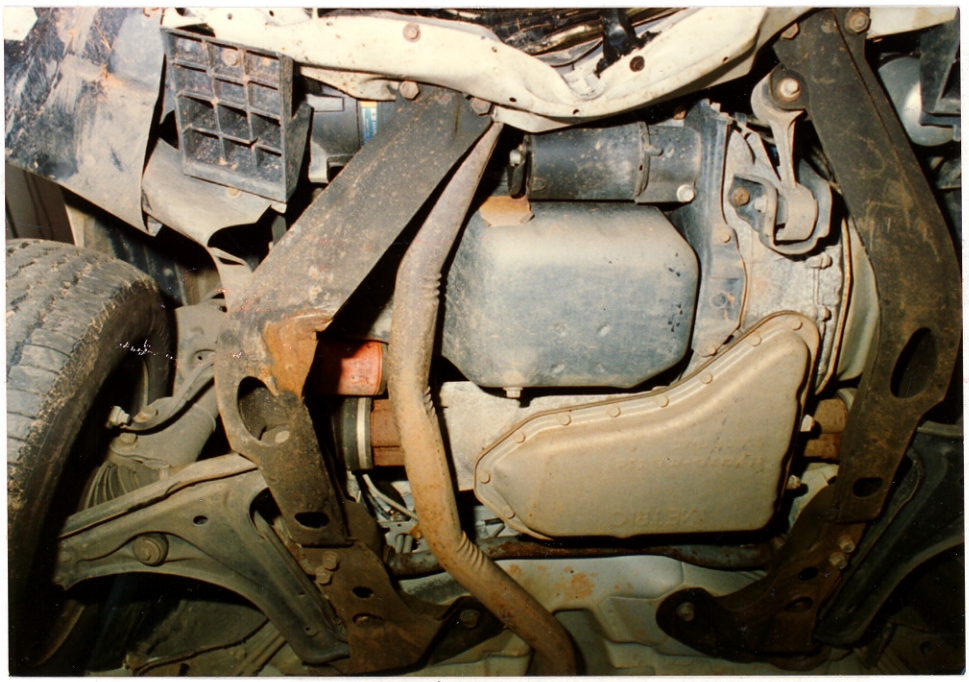
26. View of the right front bumper energy absorption device (EAD) oriented with the frame side along the bottom of the photograph.



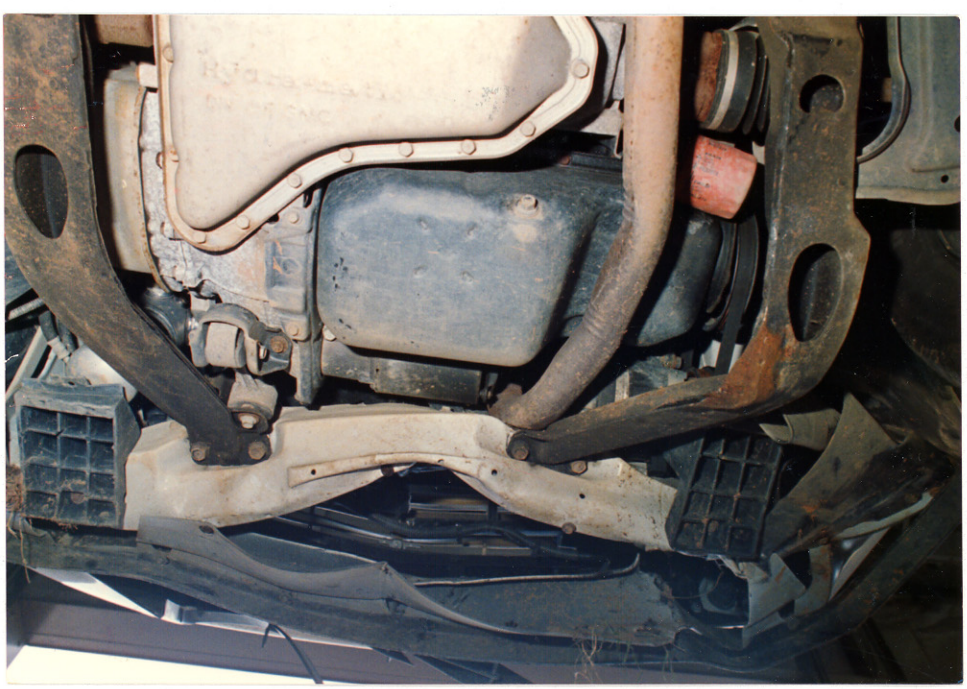
27. View of the left front EAD oriented with the vehicle's frame along the bottom portion of the photograph.



28. Vertical view of looking upward of the radiator, discriminating sensor , and front bumper.



29. View of undercarriage showing rearward displacement of frame rails. The top of the photo shows the culvert contact damage on the front lower valence panel while the right frame rail is seen along the left side of the photograph.



30. Reverse view from the previous photograph of undercarriage damage (front of vehicle located along bottom edge of photograph).

31. Close-up view of leading edge of right front frame rail.

32. View of windshield contact by right front occupant.

33. Close-up lateral view showing windshield laminate tear from contact by right front occupant.

34. Left front corner view showing impact damage.

35. Lateral view from left to right of the front bumper showing minimum rearward displacement.

36. Lateral view from right to left of the front bumper showing minimum rearward displacement.

37. Lateral view of left front fender.

38. Left rear corner view verifying no side or rear crash damage.

39. Right rear corner view.

40. View of right side plane showing ditch contact evidence on the right front tire and wheel.

41. Right front corner view showing contact damage to bumper and lower valence panel.

42. Angular view of instrument panel and deployed air bag.

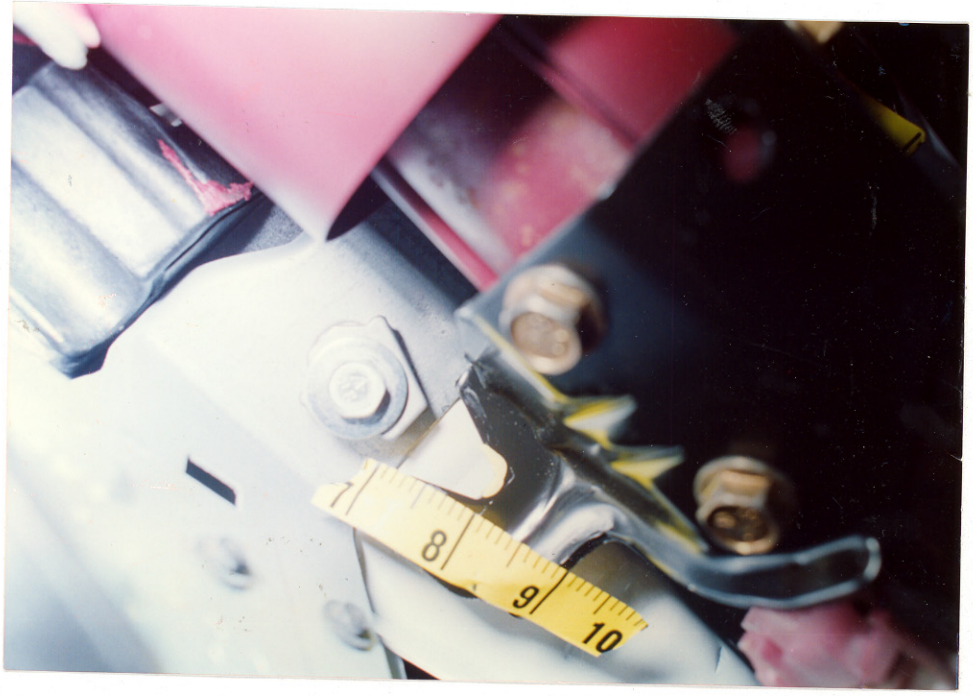
43. Overall view of the driver's air bag and contact points (steering wheel rotated approximately 100 degrees CCW).

44. Close- up of bodily fluid transfer on lower left quadrant of air bag.

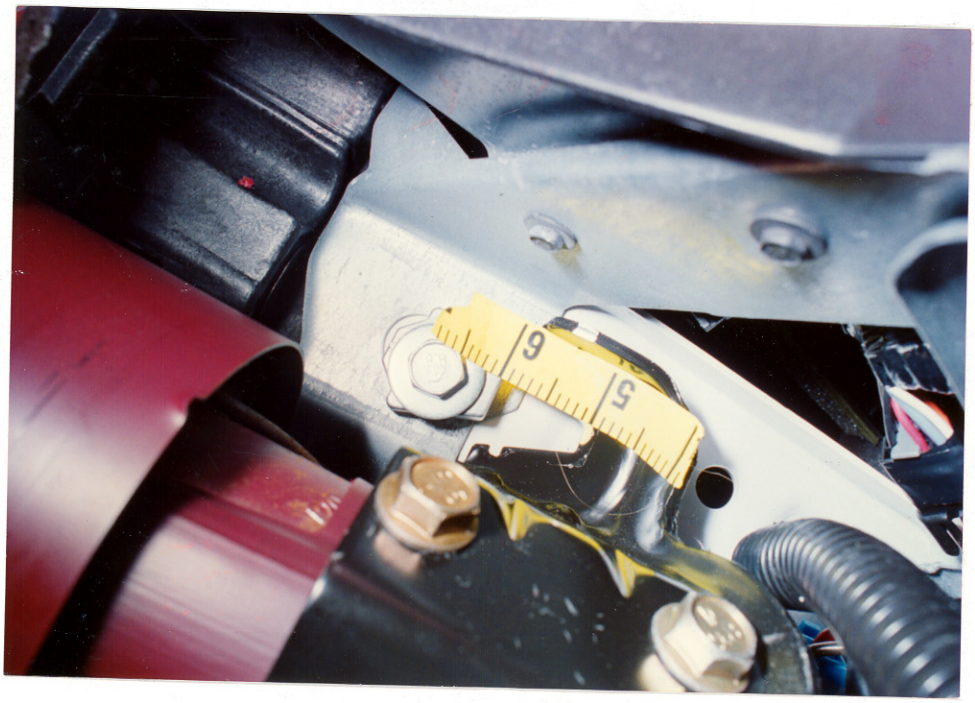
45. View of the lower air bag module flap and vent port.

46. View of upper air bag module flap showing tissue transfer along seam break.

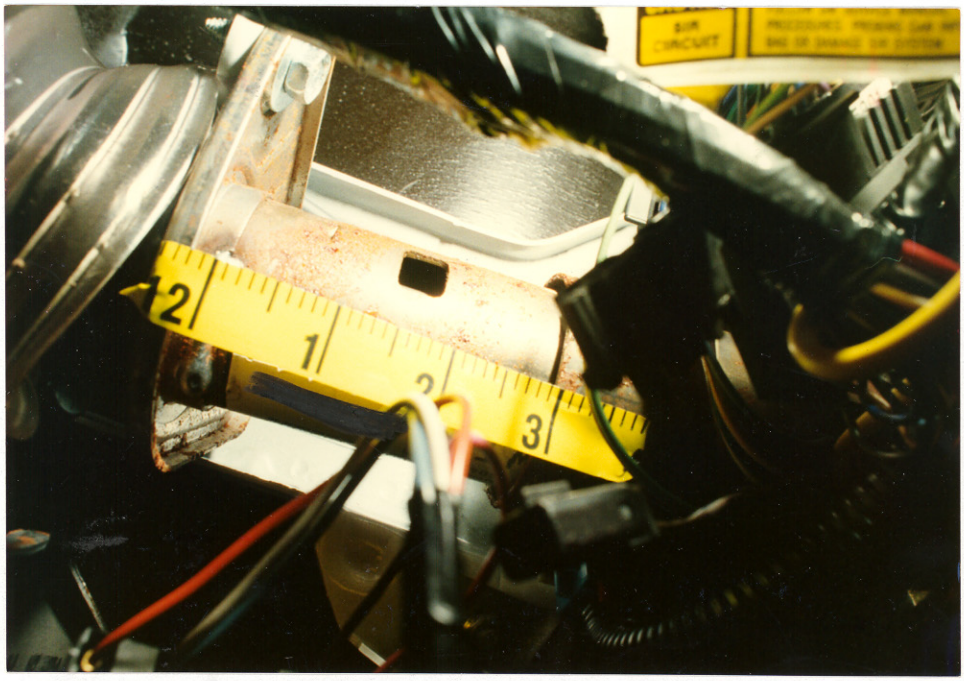
47. Scuff pattern on surface of knee bolster by driver's left knee.



50. View of left shear capsule/shear plate showing 2.5 cm (1.0") of longitudinal movement.



51. View of right shear capsule/shear plate showing 2.5 cm (1.0") of longitudinal movement.



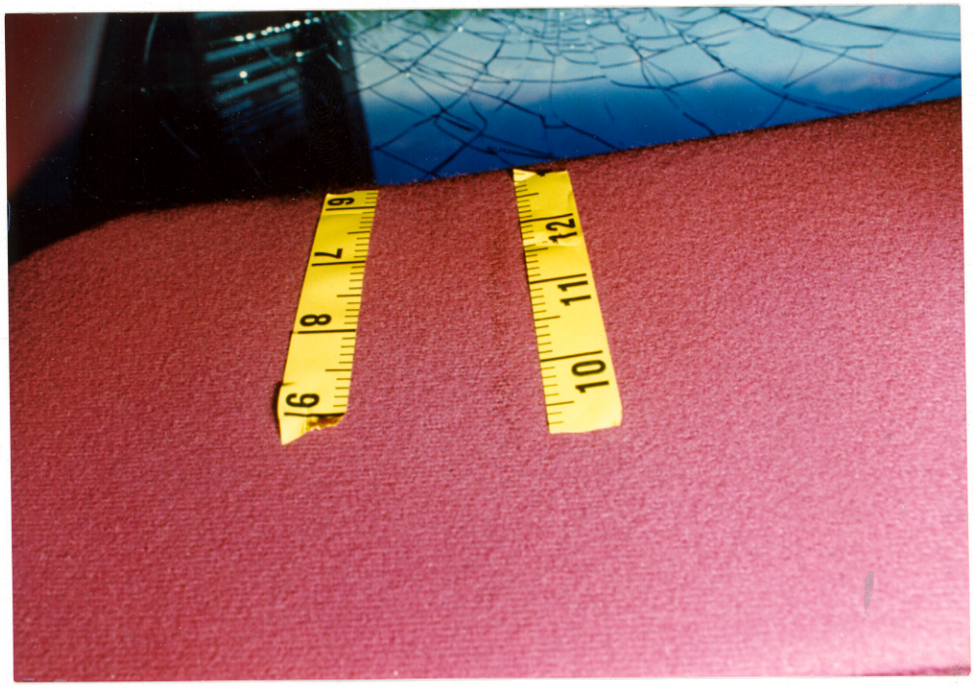
52. View of steering column EAD with 1.90 cm (0.75") of compression. The post crash measurement from female end to flange was 8.30 cm (3.25").

53. The driver's seat back rest with 3 point manual belt engaged to illustrate the lack of usage in crash.

54. Lateral view of front seats from the left side showing emesis on the console side of the right front seat back rest.

55. Abraded surface of roof liner fabric.

56. View of right front instrument panel and windshield.



57. Close-up view of right front occupant contact on right sunvisor.

58. Angular view of the right instrument panel highlighting right front occupant contacts on the windshield and upper instrument panel.

59. View of the right front seat with the 3 point manual restraint belt engaged to illustrate lack of usage in crash.

60. Lateral view of the rear seat from the right side.

"GRAPHIC"
PHOTOGRAPHS AND IMAGES

The following "GRAPHIC" Photographs and Images have been removed from this case.

photo # 61-65

If you would like a copy of these photographs and/or images please write to:

MARJORIE SACCOCCIO
VOLPE NATIONAL TRANSPORTATION SYSTEMS CENTER
55 BROADWAY
CAMBRIDGE, MA 02142

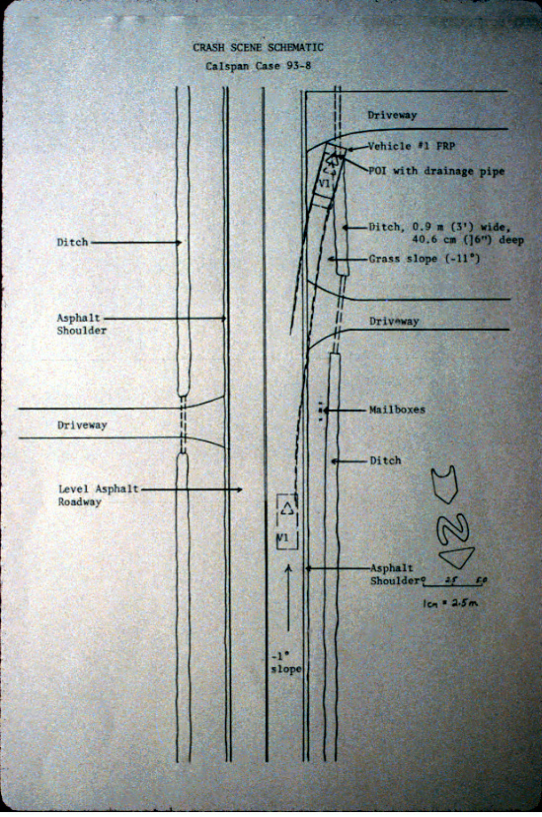
In the body of your request please include the case, photograph and image number(s).

Slide Index

Slide No(s).	Description
1.	Crash schematic
2.	Driver's injury mannequin
3.	Right front passenger's injury mannequin
4.	Pre-crash trajectory 90 meters (300 ft.) prior to impact
5.	Pre-crash trajectory 75 meters (250 ft.) prior to impact
6.	Pre-crash trajectory 60 meters (200 ft.) prior to impact
7.	Pre-crash trajectory 45 meters (150 ft.) prior to impact
8.	Pre-crash trajectory 30 meters (100 ft.) prior to impact
9.	Pre-crash trajectory 15 meters (50 ft.) prior to impact
10.	Roadside departure point
11.	View of roadside, ditch, and driveway culvert just prior to POI
12.	View of driveway culvert along vehicle's travel path
13.	View of culvert parallel to roadway
14.	Overhead view of driveway culvert showing impact evidence
15.	Reverse view of the vehicle's trajectory
16.	Reverse view of the vehicle's travel lane beyond POI
17.	Reverse view of vehicle's travel lane approximately 40 meter beyond POI showing the intersection of the driver's residential roadway

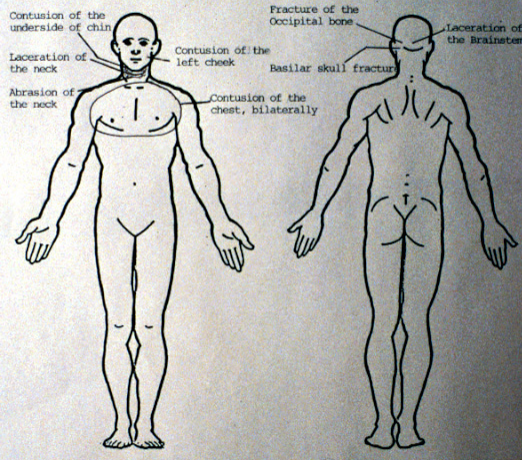
18.	Frontal view of the 1991 Chevrolet Corsica
19.	Close-up view of the right frontal section
20. - 21.	Close-up view of the right frontal section below the bumper showing contact damage
22.	Frontal view of undercarriage showing displacement of engine cradle frame rails
23.	Close-up view of right frame rail
24.	Close-up view leading end of frame rail
25.	Windshield contact of right front occupant
26.	Lateral view of front bumper showing crush
27.	Left front corner view
28.	Right rear corner view
29.	Right side view
30.	Right front corner view
31.	Angle view of the vehicle's instrument panel from the left side
32.	Close-up angular view of the left instrument panel and air bag
33.	Contact evidence on knee bolster
34.	Close-up view of left shear capsule showing steering column displacement
35.	Close-up view of right shear capsule showing steering column displacement
36.	Close-up view of steering column energy absorption device
37.	Overall lateral view of front seats from the left side

38.	Close-up view of emesis from right front passenger contact on right front seat back seat
39.	Vertical view of driver's seat area
40. - 42.	Close up of contact evidence on air bag
43.	View of upper module flap showing contact evidence
44.	View of air bag 9 o'clock position vent port
45.	View of lower module flap showing contact evidence
46.	Vertical view of the center instrument panel area
47.	Vertical view of right front instrument panel area
48.	View of contact evidence along roof liner in right front seat area
49.	Close-up of occupant contact evidence on right sunvisor
50.	Occupant contact evidence on windshield
51.	Occupant contact evidence on leading edges of right front instrument panel
52.	Angle view of instrument panel from the right side
53.	Lateral view of front seating area from right side
54.	Rear seat from left side
55.	Rear seat from right side


CRASH SCENE SCHEMATIC
Calspan Case 93-8
Driveway
Vehicle #1 FRP
POI with drainage pipe
Ditch
Ditch, 0.9 m (3') wide, 40.6 cm (16") deep
Grass slope (-11°)
Asphalt Shoulder
Driveway
Mailboxes
Driveway
Ditch
Level Asphalt Roadway
Asphalt Shoulder
1cm = 2.5m
-1° slope

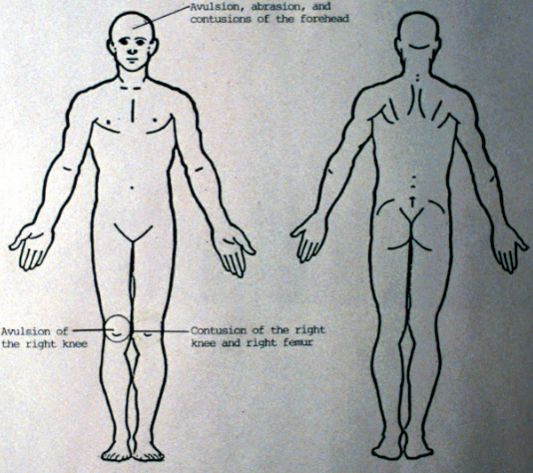
CA 9308 #1

Driver of the 1991 Chevrolet Corsica LT



CA 9308 #2

Right Front Occupant of the 1991 Chevrolet Corsica



CA 9308 #4

CA 9308 #5

CA 9308 #6

CA 9308 #7

CA 9308 #8
Best Available

CA 9308 #9
Best Available

CA 9308 #10
Best Available

CA 9308 #11
Best Available

CA 9308 #12
Best Available

CA 9308 #13
Best Available

CA 9308 #14

CA 9308 #15

CA 9308 #16

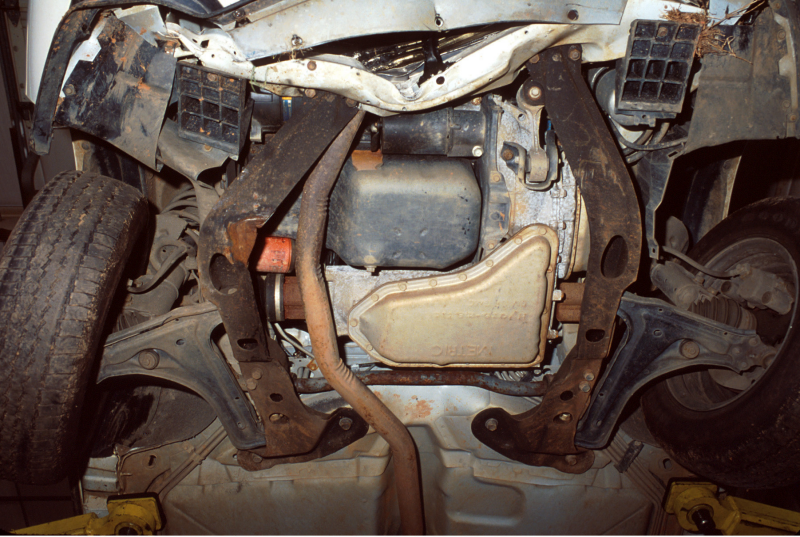
CA 9308 #17

CA 9308 #18

CA 9308 #19

CA 9308 #20

CA 9308 #21
Best Available



CA 9308 #22

CA 9308 #23

CA 9308 #24

CA 9308 #25

CA 9308 #26

CA 9308 #27

CA 9308 #28

CA 9308 #29

CA 9308 #30

CA 9308 #31
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CA 9308 #32
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CA 9308 #33
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CA 9308 #34

CA 9308 #35

CA 9308 #36

CA 9308 #37
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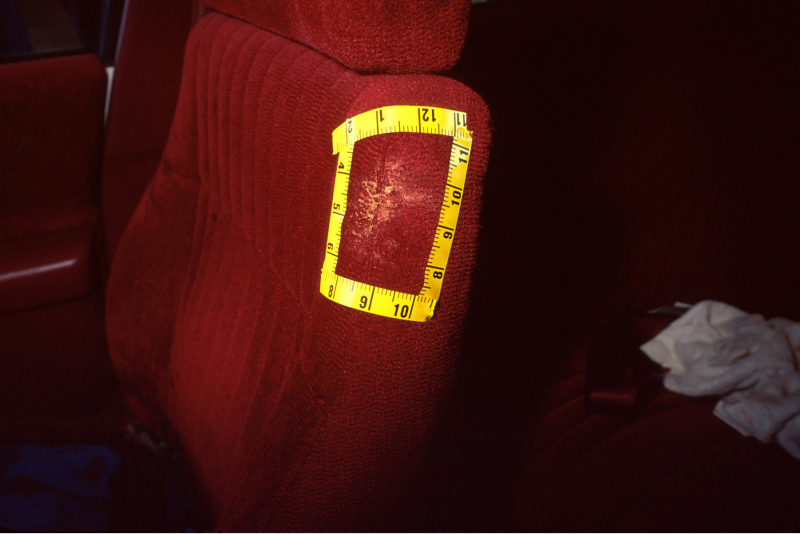

CA 9308 #38
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CA 9308 #39
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CA 9308 #41
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CA 9308 #42
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CA 9308 #43

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Best Available

CA 9308 #49

CA 9308 #50

CA 9308 #51

CA 9308 #52
Best Available

CA 9308 #53
Best Available

CA 9308 #54
Best Available

CA 9308 #55

APPENDIX A

Police Accident Report

DHPT USE ONLY

ORIGINAL

SOUTH CAROLINA
UNIFORM TRAFFIC ACCIDENT REPORT
(FOR INVESTIGATING OFFICERS)
D.H.P.T. FORM TR-310 Rev. 5/90

Amended - Attach Copy of Original Report

Error Code

RECEIVED

Page 1 of 1 Pages

Date	Time	County	1 - Interstate 4 - Secondary 2 - US Primary 5 - County 3 - SC Primary 6 - Other
[redacted]92	1130	[redacted]	

ACCIDENT LOCATION
Route Number and Name if any
ON [redacted]

AUXILIARY
1 - Main Line 5 - Spur 8 - Bypass
2 - Alternate 6 - Connection 9 - Other
7 - Business

BASE INTERSECTION
Route Number and Name if any
FROM [redacted]

AUXILIARY
1 - Main Line 5 - Spur 8 - Bypass
2 - Alternate 6 - Connection 9 - Other
7 - Business

Lane	Ramp	Lane / Ramp Travel Direction
	1 - Entrance 2 - Exit	N E S W

Distance Offset	Direction
1.5 MILES FEET	N (E) S W

1 - Interstate 4 - Secondary
2 - US Primary 5 - County
3 - SC Primary (6) Other

SECOND INTERSECTION
Route Number and Name if any
TOWARD [redacted]

AUXILIARY
1 - Main Line 5 - Spur 8 - Bypass
2 - Alternate 6 - Connection 9 - Other
7 - Business

RR Crossing ID	Time Police Notified	Time Police Arrived	Time Ambulance Arrived	IN City or Town	Or if Outside [redacted] Miles N E S (W)	For DHPT Use Only MP Grid
	1135	1217	1152	[redacted]		

Unit #	Sex	Race	Driver or Pedestrian Full Name
1	F	W	[redacted]

Birth Date	Street or R.F.D.
[redacted]	[redacted]

Residence County	City, State & Zip
[redacted]	[redacted]

License	Class	Driver License Number
[redacted]	D	[redacted]

Year	Body	Make & Vehicle Identification Number
91	4DR	CHEV 1G1LT53G3MY[redacted]

State	Year	License Plate Number
SC	93	[redacted]

Home Telephone #	Owner's Full Name
[redacted]	[redacted]

Bus. Telephone #	Street or R.F.D.
	[redacted]

Residence County	City, State & Zip
[redacted]	[redacted]

Contrib. to Acc. Yes (No)	Estimated Speed	Speed Limit	Hazardous Material
No	45	55	

# of Occupants	Vehicle Towed by	Trl. Length	Trl. Width	Trl. Length	Trl. Width
2	[redacted]				

Summons Number	Violation Codes
	[redacted]

Unit #	Sex	Race	Driver or Pedestrian Full Name

Birth Date	Street or R.F.D.

Residence County	City, State & Zip

State	Class	Driver License Number

Year	Body	Make & Vehicle Identification Number

State	Year	License Plate Number

Home Telephone #	Owner's Full Name

Bus. Telephone #	Street or R.F.D.

Residence County	City, State & Zip

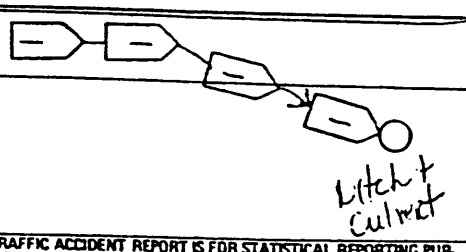
Contrib. to Acc. Yes No	Estimated Speed	Speed Limit	Hazardous Material

# of Occupants	Vehicle Towed by	Trl. Length	Trl. Width	Trl. Length	Trl. Width

Summons Number	Violation Codes
	[redacted]

Direction of Travel
Unit #1 N (E) S W
Unit #2 N E S W

NORTH



Describe What Happened (Refer to Units by Number): The driver of vehicle #1 was traveling East on [redacted] the driver of vehicle #1 driving too fast for conditions, rain, ice and being inattentive, lost control of the vehicle and struck a culvert and ditch.

NOTICE – THE UNIFORM TRAFFIC ACCIDENT REPORT IS FOR STATISTICAL REPORTING PURPOSES ONLY AND REFLECTS THE OFFICER'S BEST KNOWLEDGE, OPINION, AND BELIEF COVERING THE ACCIDENT BUT NO WARRANT IS MADE AS TO THE FACTUAL ACCURACY THEREOF.

SPECIAL USE ONLY

N

Damage to Property Other Than Vehicle: $	Estimated Amt. of Damage to Unit 1: $ 1000.00	Estimated Amt. of Damage to Unit 2: $

Witness Full Name	Address	Phone	Zip	Age	Sex

Property Owner Name	Address	Zip

OCCUPANTS

								Name	Address	Zip
1	F	W	37	11	02	1	4	[redacted]	[redacted]	[redacted]
2	F	W	8	13	02	1	2	[redacted]	[redacted]	[redacted]

Investigator's Name [redacted] Badge [redacted] Agency Type Code [redacted] 92 Reviewed By [redacted] Rank

APPENDIX B

Air Bag Supplement

Dup. Cols. 1-8 from prior card | Module A B | Format Q 1 | AIRBAG SUPPLEMENT | AB-

ACCIDENT SUMMARY

ACCIDENT DATE [redacted] /92

POLICE INVESTIGATED (1,2,9)* — 1 (Yes)

City [redacted] County ___

GENERAL LOCALITY — 4
(1) Freeway, Limited Access
(2) Urban (City)
(3) Urban-Rural (mixed)
(4) Rural, Fields

CONFIGURATION (First Harm) — 0

(0) Struck Object or Pedestrian
(1) Rear-End
(2) Head-On
(3) Rear-to-Rear
(4) Angle
(5) Sideswipe-Same Direction
(6) Sideswipe-Opposite Direct.
(7) NonColl:eg Fell from Veh
(8) NonImpact Deployment
(9) Unknown

FIRE INVOLVED (0) None — 0
(1) AirBag Vehicle
(2) Other Vehicle
(3) Both Vehicles
(9) Unknown

NUMBER: VEHICLES INVOLVED (8)=8 or more — 1
PERSONS INVOLVED — 2
INJURED PERSONS — 2
MAXIMUM AIS IN ACCIDENT — 6

OTHER VEHICLE: MAXIMUM AIS — NA

PRIME/DEPLOY IMPACT w AB VEH: EVENT NUMBER — NA

CDC ___ ___ ___ ___ ___ ___

TOTAL DELTA-V — NA

Model Year, Make, Model, Body Type:

AIRBAG VEHICLE INSPECTION

DATE VEH. INSPECTED [redacted] 19 =

REASON VEHICLE NOT INSPECTED — 1

(0) Not Required
(1) Inspection Completed
(2) Cannot be Located**
(3) Repaired or Destroyed**
(5) Refual or Impounded**
(7) Other*
**Specify: ___

IMPACT DATA OBTAINED — 7

(0) No Data Obtained
(1) CDC Only
(2) Crush Profile Only
(3) Trajectory Data Only
(4) CDC and Crush Profile
(5) CDC and Trajectory
(6) Crush and Trajectory
(7) CDC, Crush & Trajectory

BASIS OF DELTA-V — 6

(0) Not Computed (Unknown Why)
(1) CRASH - Damage Only
(2) CRASH - Damage+Trajectory
(3) Missing Vehicle Algorithm
(4) Yielding Object Algorithm
(5) Unknown Basis
(6) One Vehicle Beyond Scope
(7) Collision Beyond Scope
(8) Insufficient Data

VEHICLE HISTORY

HAS AIRBAG VEHICLE BEEN IN ANY PRIOR IMPACTS (1,2,9)* — 2 (No)

HAS ANY PRIOR MAINTENANCE/SERVICE BEEN PERFORMED ON SYSTEM(1,2,9)* — 2

*Describe: ___

AIRBAG VEHICLE: FLEET ___

VIN 1G1LT5[redacted]

MILEAGE 56,528 km (35,126 mi)

* (1)=Yes, (2)=No, (9)=Unknown

DRAFT - 09/04/85

SYSTEM READINESS LAMP
(In Instrument Cluster)

PRE-IMPACT LAMP CONDITION — 1

(1) Functioning/ProvedOut
(2) Inoperative
(9) Unknown

DRIVER'S REPORT OF PRE-IMPACT FLASHING — 99

(00) No Flashing Reported
(01) Continuous Flashing
(02)
-- >Number of Flashes
(11)
(12) Constant Light
(19) Flashing, Unkn Number
(88) Not App (system removed)
(99) Unknown

PERIOD OF PRE-IMPACT FLASHING — 9

(0) No Flashing
(1) Same Day as Impact
(2) Prior Day
(3) Prior Two Days
(4) Prior Week
(5) Prior Month
(6) Over One Month
(9) Unknown

POST-IMPACT LAMP CONDITION — 9

(1) Functioning/ProvedOut
(2) Inoperative
(9) Unknown

POST-IMPACT FLASHING — 99

(00) No Flashing
(01) Continuous Flashing
(02)
-- >Number of Flashes
(11)
(12) Constant Light
(19) Flashing, Unkn Number
(88) Not Appl (removed)
(99) Unknown

AIRBAG VEHICLE FIRST HARMFUL EVENT — 31

(01) Fire or explosion
(02) Immersion
(03) Gas Inhalation
(04) Fell from vehicle
(05) Injured in vehicle
(06) Other noncollision (specify):
(07) Overturn
(08) Jackknife with intraunit damage
Collision With:
(09) Pedestrian
(10) Pedalcyclist
(11) Railway train
(12) Animal
(13) Motor vehicle in transport (same roadway)
(14) Motor vehicle in transport (other roadway)
(15) Parked motor vehicle
(16) Other type nonmotorist (specify):
(17) Thrown or falling object
(18) Boulder
Collision with Fixed Object:
(20) Building
(21) Impact attenuator/Crash Cushion
(22) Bridge pier or abutment
(23) Bridge parapet end
(24) Bridge rail
(25) Guardrail
(26) Concrete traffic barrier
(27) Median barrier
(28) Other longitudinal barrier (specify):
(29) Highway/Traffic sign post
(30) Overhead sign support
(31) Luminaire/Light support
(32) Utility pole
(33) Other post, pole, or support (specify):
(34) Culvert
(35) Curb
(36) Ditch
(37) Embankment-earth
(38) Embankment-rock, stone or concrete
(39) Fence (wooden, wire, chain link, etc.)
(40) Wall (stone, rock, metal, etc.)
(41) Fire hydrant
(42) Shrubbery
(43) Tree
(44) Other fixed object (specify):
(45) Pavement surface irregularity (pothole, grooved, grates)
(99) Unknown

AIRBAG VEHICLE IMPACT SUMMARY

VEHICLE ROLE: 1

(0) Non-collision
(1) Striking Unit
(2) Struck Unit
(3) Both Striking and Struck
(9) Unknown

MANNER OF LEAVING SCENE: 2

(1) Driven
(2) Towed-due to damage
(3) Towed - not for damage
(4) Towed - details unknown
(5) Abandoned
(9) Unknown

NUMBER OF IMPACT EVENTS: 1
(8) 8 or more, (9) Unknown

ROLLOVER: 0
(0) No Rollover
(1) First Event
(2) Subsequent Event
(3) Yes, Unknown Event
(9) Unknown

OVERRIDE/UNDERRIDE: 1

(1) No over/underride
(1) Override - 1st CDC
(3) - Other CDC
(4) Underride - 1st CDC
(6) - Other CDC
(9) Unknown

AIRBAG VEHICLE DAMAGE

CODES: (1) Yes, DAMAGED
(2) No Damage
(9) Unknown

LEFT FRONT FENDER DAMAGE: 2

RIGHT FRONT FENDER DAMAGE: 2

CENTER TOP OF GRILLE DAMAGE: 1

FRONT BUMPER E.A. STATUS: Left: 1 Right: 1

(1) Normal
(2) Extended
(3) Partial Compression
(4) Complete Compression
(5) Not Applicable
(9) Unknown

FIRST AIRBAG VEHICLE IMPACT:

CONFIGURATION: 0

(0) Struck Object or Pedestrian
(1) Rear-End
(2) Head-On
(3) Rear-to-Rear
(4) Angle
(5) Sideswipe - Same Direction
(6) Sideswipe-Opposite Direct.
(7) NonColl:eg Fell from Veh
(8) Nonimpact Deployment
(9) Unknown

CDC 12-FZLW-2

OBJECT CONTACTED: _____

PRIMARY/DEPLOYMENT IMPACT:

EVENT NUMBER: 1

TOTAL DELTA-V: km/h 2 16

LONGITUDINAL DELTA-V: 2

CONFIGURATION: 0

(0) Struck Object or Pedestrian
(1) Rear-End
(2) Head-On
(3) Rear-to-Rear
(4) Angle
(5) Sideswipe - Same Direction
(6) Sideswipe-Opposite Direct.
(7) NonColl:eg Fell from Veh
(8) Nonimpact Deployment
(9) Unkonwn

CDC 12-FZLW-2

OBJECT CONTACTED: Drainage pipe for Driveway culvert

NOTES:

AIRBAG SYSTEM DAMAGE

CODES: (1) Yes, Damaged*
(2) No, Intact
(8) Not App.(Removed)
(9) Unknown

AIRBAG MODULE	2
SENSORS: Left Front	—
Center Front	2
Right Front	—
Rear, Cowl	—
DIAGNOSTIC MODULE	2
WIRING	2
KNEE DIVERTER	2
INDICATION OF DISCONNECTED OR LOOSE ELECTRICAL CONNECTORS	2

CONDITION OF DEPLOYED BAG 1

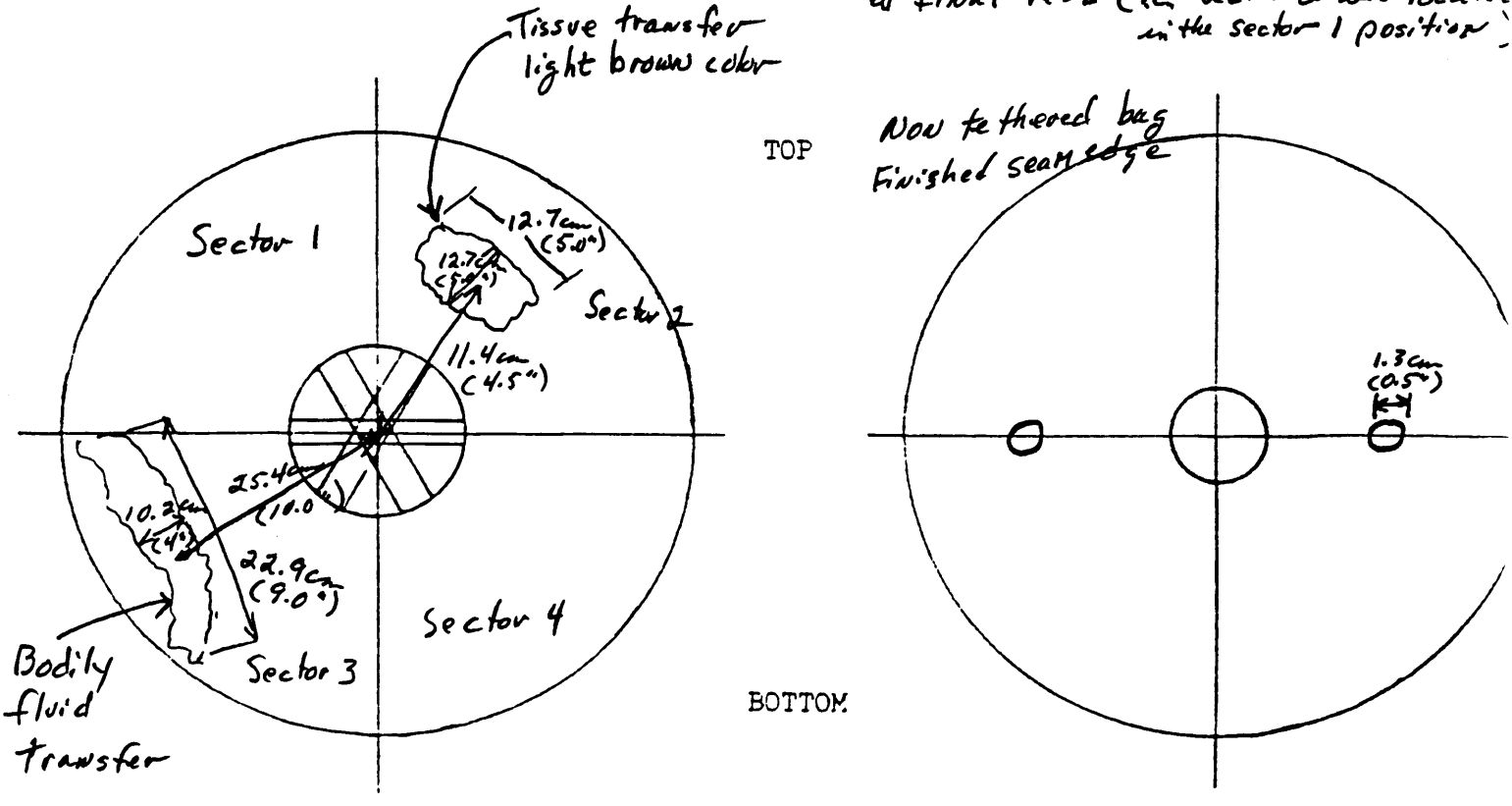
(1) Bag Intact
(2) Split or Torn*
(3) Cut by Object In Impact*
(4) Cut after Accident*
(5) Other (e.g., burned)*
(8) N/A (not deployed)
(9) Unknown

*DESCRIBE System and Bag Damage:

Bag = [redacted]

NOTE DAMAGE AND CONTACT MARKS ON AIRBAG DIAGRAMS BELOW:

Steering wheel rotated 100° ccw at final rest (ie Sector 2 was located in the sector 1 position)



FRONT BACK

OCCUPANTS of AIRBAG CAR

NUMBER OF OCCUPANTS IN VEHICLE (8) 8 or more	2
NUMBER OF INJURED PERSONS	2
MAXIMUM AIS IN AIRBAG VEHICLE (0) No Injury (1-6) AIS Severity (7) Injured, Unknown Severity (9) Unknown	6

DRIVER AGE 37 SEX F

NUMBER OF DRIVER INJURIES	8
SOURCE OF BEST INJURY DATA	4&5

(0) Not Injured
(1) Autopsy w/wo med. records
(2) Hospital Medical Records
(3) Emergency Room only
(4) Private physician, Clinic
(5) Lay Coroner Report
(6) EMS Personnel
(7) Interviewee
(8) Police
(9) Unknown

MAXIMUM AIS BY BODY REGION

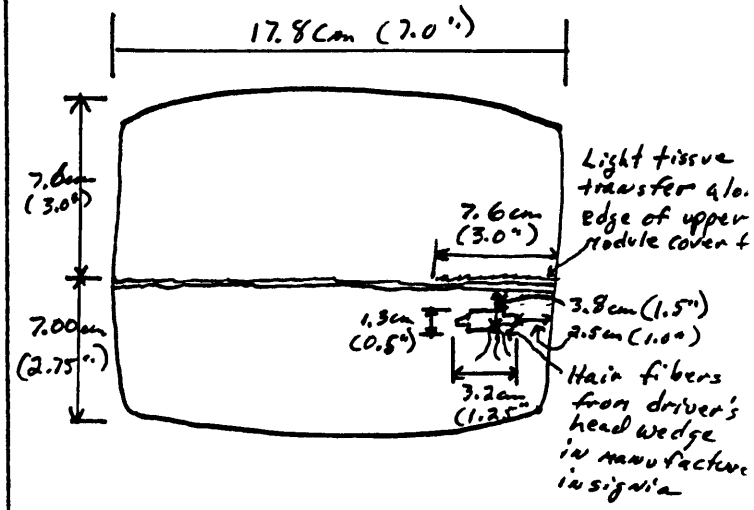
REGION	MAX AIS	CONTACT
Head/Neck/Face	6	roof
Chest	1	Air bag
Abdomen	—	— —
Leg/Hips	—	— —
Other (Arms)	—	— —
DRIVER MAXIMUM	6	— —

EJECTION: Extent None

Portal

NOTES:

Air Bag Module Cover



Flap thickness: 0.30cm (0.13")

DRIVER BELT USAGE: (1) Used (2) Not Used (9) Unknown 2

Evidence: On-scene photographs, interior vehicle contact points, police, Coroner's report.

DRIVER POSTURE: Any Comments Recorded (1) Yes, (2) No 1

Describe driver's posture and position on seat including specific comments on head, torso, buttocks, legs and feet. Also note hand and arm position. Did driver brace before crash? Describe:

Driver was struggling with right front passenger to fasten her seat belt. This activity in addition to applying the brakes placed the driver within close proximity of the air bag module cover at the time of impact.

DRIVER FOREIGN OBJECTS: Comments Recorded (1) Yes, (2) No 9

Was driver wearing contact lenses or eyeglasses? Or holding any foreign object at the time of the impact (packages on lap, pipe, food, bottle, cigarette, etc.)? Did any lenses, objects, or jewelry play any role?:

The driver was required to wear corrective lenses, but it is unknown if eye glasses were worn at the time of the crash.

DRIVER COMMENTS: Comments Recorded (1) Yes, (2) No 2

Was the driver aware that the vehicle was equipped with a supplemental restraint system? Did driver offer any comments on smoke, noise, etc.? Did the driver comment on the airbag as a restraint system? Describe:

Driver received fatal injuries as a consequence of the air bag deployment sequence.

PASSENGER-AIRBAG CONTACT (1) Yes, (2) No, (9) Unknown NA

Describe:

APPENDIX C

SIR DERM EEPROM DATA

SIR DERM EEPROM DATA

Write in DATE: [redacted] 93

Write in VIN: _____

ROM identification: 85

```
B600:  AA AA 00 00 00 01 00 00
B608:  00 00 00 00 00 00 00 00
B610:  00 7D 00 00 FF 1A C6 00
B618:  0A 0E F3 FE 01 00 00 00
B620:  00 00 00 00 00 00 00 00
B628:  00 00 00 00 00 00 00 00
B630:  00 00 00 00 00 00 00 00
B638:  00 00 00 00 00 00 00 00
B640:  00 00 00 00 00 00 00 00
B648:  00 00 00 00 00 00 00 00
B650:  00 00 00 00 00 00 00 00
B658:  00 00 00 00 00 00 00 00
B660:  00 00 00 00 00 0A 22 00
B668:  00 FF 0F F9 F9 F9 F9 F9
B670:  F9 F9 F9 F9 F9 F9 F9 F9
B678:  F9 F9 63 00 00 00 00 00
B680:  00 00 00 00 00 00 00 00
B688:  00 00 00 00 00 00 00 00
B690:  00 00 00 00 55 00 00 00
B698:  00 00 00 00 00 00 00 00
B6A0:  00 00 00 00 00 00 00 00
B6A8:  00 00 00 00 02 2F 00 02
B6B0:  2F 00 BB 00 20 B4 00 20
B6B8:  B4 00 8C 00 20 D9 00 20
B6C0:  D9 00 BD 00 21 2A 00 21
B6C8:  2A 00 8E 00 21 6B 00 21
B6D0:  6B 00 8F 00 21 97 00 21
B6D8:  97 00 90 00 21 DA 00 21
B6E0:  DA 00 91 00 21 FB 00 21
B6E8:  FB 00 92 00 22 27 00 22
B6F0:  27 00 93 00 00 00 00 00
B6F8:  00 4F 7D 00 00 00 00 00
B700:  00 BB 7D 00 00 00 00 00
B708:  00 4E 7D 00 00 00 00 00
B710:  00 4A 7D 00 00 00 00 00
B718:  00 52 7D 00 00 00 00 00
B720:  00 4E 7D 00 00 00 00 00
B728:  00 61 7D 00 00 00 00 00
B730:  00 66 7D 00 00 00 00 00
B738:  00 80 7D 00 00 00 00 00
B740:  00 35 7D 00 00 67 00 00
B748:  67 00 81 00 00 B9 00 00
B750:  B9 00 82 00 00 98 00 00
B758:  98 00 83 00 00 98 00 00
B760:  98 00 83 00 00 A8 00 00
B768:  A8 00 84 00 00 B7 00 00
B770:  B7 00 85 00 00 BE 00 00
B778:  BE 00 86 00 01 39 00 01
B780:  39 00 87 00 01 72 00 01
B788:  72 00 88 00 01 EC 00 01
B790:  EC 00 89 00 02 2C 00 02
B798:  2C 00 8A 00 02 2C 00 02
B7A0:  2C 00 8A 00 02 2F 00 02
B7A8:  2F 00 8B 00 00 00 00 00
B7B0:  00 00 00 00 00 00 00 00
B7B8:  00 00 00 00 00 00 00 00
B7C0:  00 00 00 00 00 00 00 00
B7C8:  00 00 00 00 00 00 00 00
B7D0:  00 00 00 00 00 00 00 00
B7D8:  00 00 00 00 00 00 00 00
B7E0:  00 00 00 00 00 00 00 00
B7E8:  00 00 00 00 00 00 00 00
B7F0:  00 00 00 00 00 00 00 00
B7F8:  00 00 00 00 00 00 00 00
```

APPENDIX D

CRASHPC Output

SUMMARY OF CRASHPC RESULTS USING DAMAGE

BCI Case 93-8

	SPEED CHANGE (DAMAGE)	IMPACT SPEED (DAMAGE AND SPINOUT)
VEHICLE #1		
TOTAL	26 KPH (16 MPH)	30 KPH (19 MPH)
LONGITUDINAL	-26 KPH (-16 MPH)	30 KPH (19 MPH)
LATITUDINAL	0 KPH (0 MPH)	0 KPH (0 MPH)
PDOF ANGLE	0 DEGREES	
ENERGY DISSIPATED =	34742 JOULES (25621 FT-LB)	
VEHICLE #2		
TOTAL	0 KPH (0 MPH)	0 KPH (0 MPH)
LONGITUDINAL	0 KPH (0 MPH)	0 KPH (0 MPH)
LATITUDINAL	0 KPH (0 MPH)	0 KPH (0 MPH)
PDOF ANGLE	0 DEGREES	
ENERGY DISSIPATED =	0 JOULES (0 FT-LB)	

SCENE INFORMATION

	VEHICLE #1	VEHICLE #2
IMPACT X-POSITION	2.2 M. (7.2 FT.)	5.9 M. (19.4 FT.)
IMPACT Y-POSITION	.0 M. (.0 FT.)	.0 M. (.0 FT.)
IMPACT HEADING ANGLE	0 DEGREES	180 DEGREES
REST X-POSITION	3.0 M. (9.8 FT.)	5.9 M. (19.4 FT.)
REST Y-POSITION	.0 M. (.0 FT.)	.0 M. (.0 FT.)
REST HEADING ANGLE	0 DEGREES	180 DEGREES
SIDE-SLIP ANGLE	0 DEGREES	0 DEGREES
DIRECTION OF ROTATION	NONE	NONE
AMOUNT OF ROTATION	<360	<360

COLLISION AND SEPARATION

	VEHICLE #1	VEHICLE #2
COLLISION		
IMPACT X-POSITION	2.2 M. (7.2 FT.)	5.9 M. (19.4 FT.)
IMPACT Y-POSITION	.0 M. (.0 FT.)	.0 M. (.0 FT.)
IMPACT HEADING ANGLE	0 DEGREES	180 DEGREES
SEPARATION (USING SPINOUT)		
US	5 KPH (3 MPH)	0 KPH (0 MPH)
VS	0 KPH (0 MPH)	0 KPH (0 MPH)
PSIDO	0 DEG/SEC	0 DEG/SEC

DAMAGE DATA

	VEHICLE #1	VEHICLE #2
SIZE CATEGORY	3	11
STIFFNESS CATEGORY	9	0
VEHICLE WEIGHT	1285 KGS (2833 LBS)	****** KGS (2204586 LBS) *
CDC	12FZEW2	BARRIER
PDOF ANGLE	0 DEGREES *	0 DEGREES *
CRUSH LENGTH	135 CM. (53 IN.)	0 CM. (0 IN.) *
C1	9 CM. (4 IN.)	0 CM. (0 IN.) *
C2	10 CM. (4 IN.)	0 CM. (0 IN.) *
C3	19 CM. (8 IN.)	0 CM. (0 IN.) *
C4	32 CM. (13 IN.)	0 CM. (0 IN.) *
C5	22 CM. (9 IN.)	0 CM. (0 IN.) *
C6	13 CM. (5 IN.)	0 CM. (0 IN.) *
D	23 CM. (9 IN.)	0 CM. (0 IN.) *
D'	31 CM. (12 IN.)	0 CM. (0 IN.) *

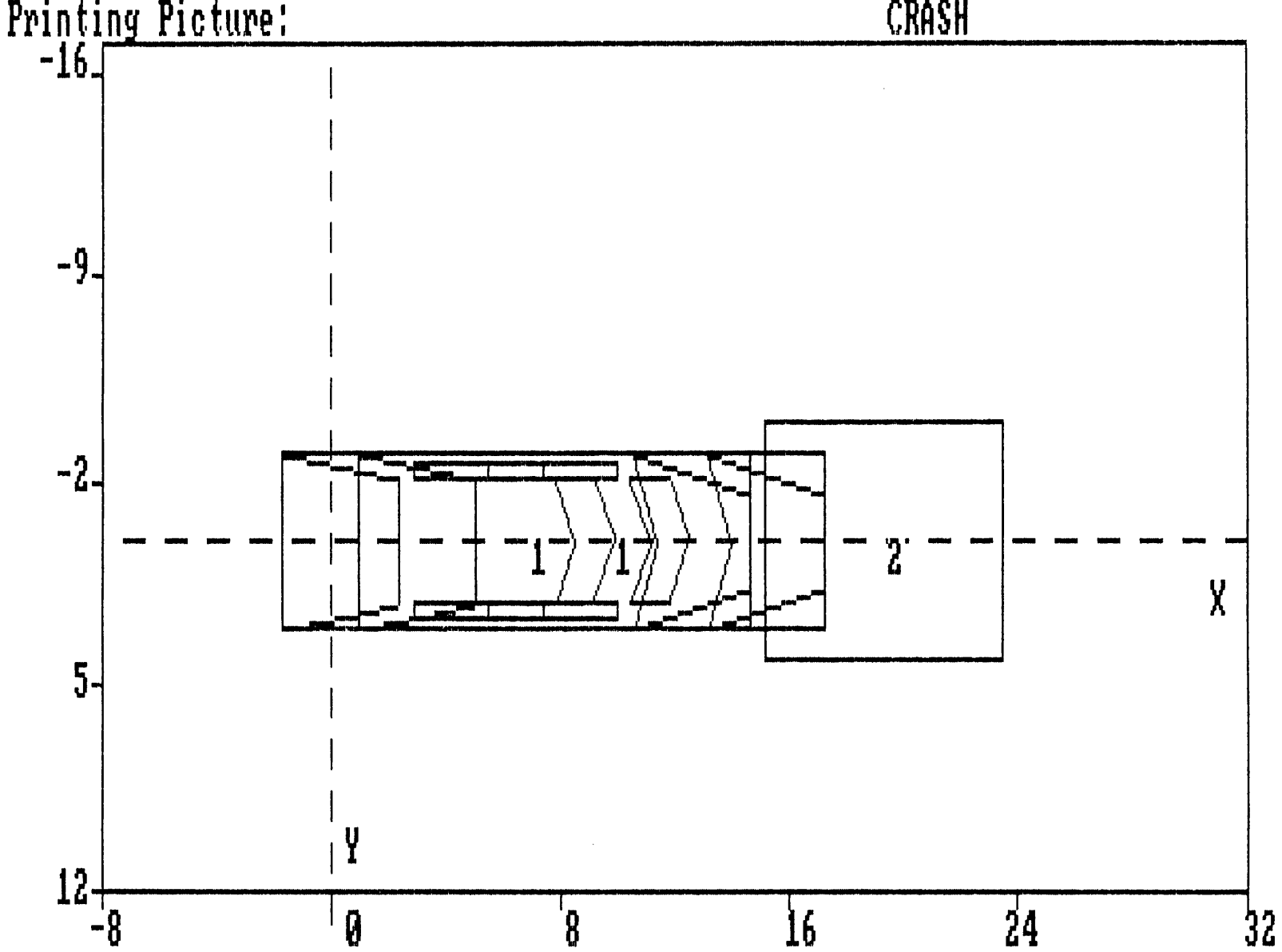
(* INDICATES DEFAULT VALUE)

DIMENSIONS AND INERTIAL PROPERTIES

	VEHICLE #1	VEHICLE #2
CG TO FRONT AXLE	130 CM. (51 IN.)	127 CM. (50 IN.)
CG TO REAR AXLE	141 CM. (56 IN.)	127 CM. (50 IN.)
TRACK	150 CM. (59 IN.)	127 CM. (50 IN.)
CG TO FRONT OF VEH	228 CM. (90 IN.)	127 CM. (50 IN.)
CG TO REAR OF VEH	-270 CM. (-106 IN.)	-127 CM. (-50 IN.)
CG TO SIDE OF VEH	92 CM. (36 IN.)	127 CM. (50 IN.)
MOMENT OF INERTIA	11106 KGS (24484 LBS)	****** KGS (******* LBS)
VEHICLE MASS	3 KGS (7 LBS)	2600 KGS (5732 LBS)

ROLLING RESISTANCE		
LEFT FRONT WHEEL	1.00	.00
RIGHT FRONT WHEEL	1.00	.00
LEFT REAR WHEEL	.01	.00
RIGHT REAR WHEEL	.01	.00

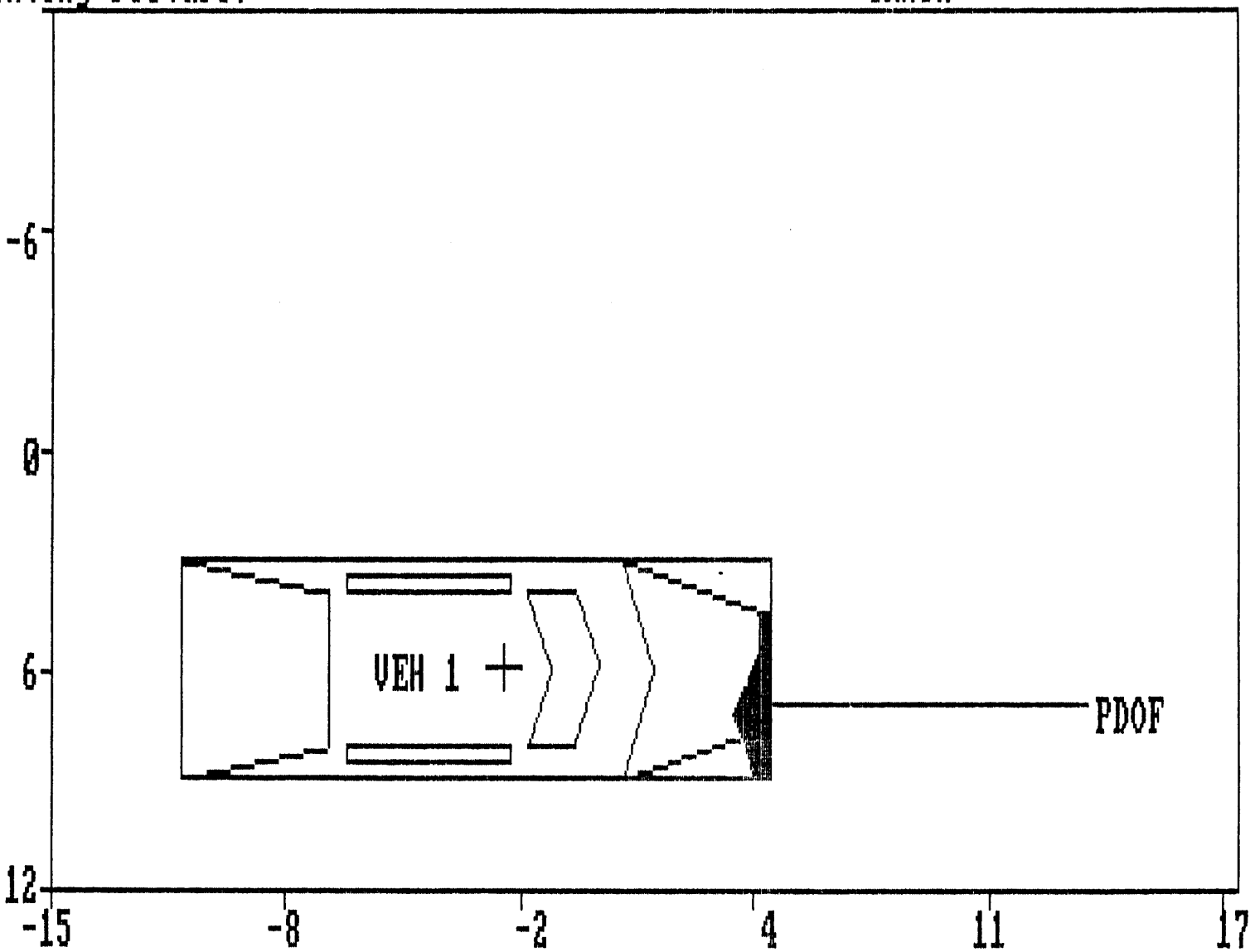
COEFFICIENT OF FRICTION = .20



SCENE DESCRIPTION

Printing Picture:

CRASH



DAMAGE DESCRIPTION

APPENDIX E

NASS Vehicle Forms

U.S. Department of Transportation
National Highway Traffic Safety Administration

GENERAL VEHICLE FORM

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. ~~Primary Sampling Unit Number~~ ____
2. Case Number - Stratum 93-08
3. Vehicle Number 01

VEHICLE IDENTIFICATION

4. Vehicle Model Year 91
   Code the last two digits of the model year
   (99) Unknown

5. Vehicle Make (specify): 20
   Chevrolet
   Applicable codes are found in your NASS Data Collection, Coding and Editing Manual.
   (99) Unknown

6. Vehicle Model (specify): 019
   Corsica LT
   Applicable codes are found in your NASS Data Collection, Coding and Editing Manual.
   (999) Unknown

7. Body Type 04
   Note: Applicable codes may be found on the back of this page.

8. Vehicle Identification Number
   1G1LT53G3MY_____
   Left justify; Slash zeros and letter Z (Ø and Z)
   No VIN—Code all zeros
   Unknown—Code all nine's

OFFICIAL RECORDS

9. Police Reported Vehicle Disposition 1
   (0) Not towed due to vehicle damage
   (1) Towed due to vehicle damage
   (9) Unknown

10. Police Reported Travel Speed 072
    Code to the nearest kph (NOTE: 000 means less than 0.5 kph)
    (160) 159.5 kph and above
    (999) Unknown
    45 mph X 1.6093 = 072 kph

11. Police Reported Alcohol Presence 9
    (0) No alcohol present
    (1) Yes (alcohol present)
    (7) Not reported
    (8) No driver present
    (9) Unknown

    Note: See variables 37 through 55 (Page 4) for information on Other Drugs

12. Alcohol Test Result For Driver 99
    Code actual value (decimal implied before first digit—0.xx)
    (95) Test refused
    (96) None given
    (97) AC test performed, results unknown
    (98) No driver present
    (99) Unknown

    Source: _____

ACCIDENT RELATED

13. Speed Limit 089
    (000) No statutory limit
    Code posted or statutory speed limit in kph
    (999) Unknown
    55 mph X 1.6093 = 089 kph

14. Attempted Avoidance Maneuver 03
    (00) No impact
    (01) No avoidance actions
    (02) Braking (no lockup)
    (03) Braking (lockup)
    (04) Braking (lockup unknown)
    (05) Releasing brakes
    (06) Steering left
    (07) Steering right
    (08) Braking and steering left
    (09) Braking and steering right
    (10) Accelerating
    (11) Accelerating and steering left
    (12) Accelerating and steering right
    (97) No driver present
    (98) Other action (specify): _____
    (99) Unknown

15. Accident Type 07
    Applicable codes may be found on the back of page two of this field form
    (00) No impact
    Code the number of the diagram that best describes the accident circumstance
    (98) Other accident type (specify): _____
    (99) Unknown

****** SKIP TO VARIABLE GV37 IF GV07 DOES NOT EQUAL 01-49 ******

HS Form 435 (Rev. 1/93)

OCCUPANT RELATED

16. Driver Presence in Vehicle: 1
(0) Driver not present
(1) Driver present
(9) Unknown

17. Number of Occupants This Vehicle: 02
(00-96) Code actual number of occupants for this vehicle
(97) 97 or more
(99) Unknown

18. Number of Occupant Forms Submitted: 02

VEHICLE WEIGHT ITEMS

19. Vehicle Curb Weight: 1,200 0
____Code weight to nearest 10 kilograms.
(045) Less than 450 kilograms
(610) 6,100 kilograms or more
(999) Unknown

2,638 lbs X .4536 = 1,197 kgs

Source: [redacted]

20. Vehicle Cargo Weight: 0,000 0
0 Code weight to nearest 10 kilograms.
(000) Less than 5 kilograms
(450) 4,500 kilograms or more
(999) Unknown

__,___ lbs X .4536 = __,___ kgs

RECONSTRUCTION DATA

21. Towed Trailing Unit: 0
(0) No towed unit
(1) Yes—towed trailing unit
(9) Unknown

22. Documentation of Trajectory Data for This Vehicle: 1
(0) No
(1) Yes

23. Post Collision Condition of Tree or Pole (For Highest Delta V): 0
(0) Not collision (for highest delta V) with tree or pole
(1) Not damaged
(2) Cracked/sheared
(3) Tilted <45 degrees
(4) Tilted ≥45 degrees
(5) Uprooted tree
(6) Separated pole from base
(7) Pole replaced
(8) Other (specify):
(9) Unknown

24. Rollover: 0
(0) No rollover (no overturning)

Rollover (primarily about the longitudinal axis)
(1) Rollover, 1 quarter turn only
(2) Rollover, 2 quarter turns
(3) Rollover, 3 quarter turns
(4) Rollover, 4 or more quarter turns (specify):

(5) Rollover--end-over-end (i.e., primarily about the lateral axis)
(9) Rollover (overturn), details unknown

OVERRIDE/UNDERRIDE (THIS VEHICLE)

25. Front Override/Underride (this Vehicle): 0

26. Rear Override/Underride (this Vehicle): 0

(0) No override/underride, or not an end-to-end impact

Override (see specific CDC)
(1) 1st CDC
(2) 2nd CDC
(3) Other not automated CDC (specify):

Underride (see specific CDC)
(4) 1st CDC
(5) 2nd CDC
(6) Other not automated CDC (specify):

(7) Medium/heavy truck or bus override
(9) Unknown

HEADING ANGLE AT IMPACT FOR HIGHEST DELTA V

Values: (000)-(359) Code actual value
(997) Noncollision
(998) Impact with object
(999) Unknown

27. Heading Angle For This Vehicle: 998

28. Heading Angle For Other Vehicle: 998

29. Basis for Total Delta V (highest) 2

Delta V Calculated
(1) CRASH program—damage only routine
(2) CRASH program—damage and trajectory routine
(3) Missing vehicle algorithm

Delta V Not Calculated
(4) At least one vehicle (which may be this vehicle) is beyond the scope of an acceptable reconstruction program, regardless of collision conditions.
(5) All vehicles within scope (CDC applicable) of CRASH program but one of the collision conditions is beyond the scope of the CRASH program or other acceptable reconstruction technique, regardless of adequacy of damage data.
(6) All vehicle and collision conditions are within scope of one of the acceptable reconstruction programs, but there is insufficient data available.

COMPUTER GENERATED DELTA V

	Secondary	Highest
30. Total Delta V		026

26 Nearest kph (16mph) _____
(NOTE: 000 means less than 0.5 kph)
(160) 159.5 kph and above
(999) Unknown

	Secondary	Highest
31. Longitudinal Component of Delta V		+0026

-26 Nearest kph (-16mph) _____
(NOTE: __000 means greater than -0.5 kph and less than +0.5 kph)
(±160) ±159.5 kph and above
(__999) Unknown

	Secondary	Highest
32. Lateral Component of Delta V		+-000

0 Nearest kph _____
(NOTE: __000 means greater than -0.5 kph and less than +0.5 kph)
(±160) ±159.5 kph and above
(__999) Unknown

33. Energy Absorption 034.700

34742 Nearest 100 joules (25,621 ft-lb) _____
(NOTE: 0000 means less than 50 joules)
(9997) 999,650 joules or more
(9999) Unknown

34. Confidence In Reconstruction Program Results (For Highest Delta V) 1
(0) No reconstruction
(1) Collision fits model — results appear reasonable
(2) Collision fits model — results appear high
(3) Collision fits model — results appear low
(4) Borderline reconstruction — results appear reasonable

35. Type of Vehicle Inspection 1
(0) No inspection
(1) Complete inspection
(2) Partial inspection (specify): _____

36. Is this an AOPS Vehicle? 1
(0) No
(1) Yes - researcher determined
(2) VIN determined air bag system
(3) VIN determined automatic (passive) belts
(4) VIN determined air bag and automatic (passive) belts

IS OLDMISS APPLICABLE FOR THIS VEHICLE? [ ] YES [ ] NO

IF YES: IS A COMPLETED OLDMISS PROGRAM SUMMARY INCLUDED? [ ] YES [ ] NO

37. Police Reported Other Drug Presence — 9
    (0) No other drugs present
    (1) Yes (other drug present)
    (7) Not reported
    (8) No driver present
    (9) Unknown

38. Police Reported Drug Evaluation Classification (DEC) Test For Driver — 0
    (0) No DEC process available or given
    (1) DEC process given, results known
    (2) DEC process given, results unknown
    (3) DEC process available, unknown if given
    (8) No driver present

39. Other Drug Specimen Test Type For Driver — 9
    (0) No specimen test given
    (1) Blood test
    (2) Urine test
    (3) Other specimen tests (specify): _____
    (7) Unspecified specimen test
    (8) No driver present
    (9) Unknown if specimen test given

DRUG EVALUATION CLASSIFICATION
OTHER DRUGS TEST RESULTS FOR DRIVER

	DEC Test Results	Specimen Test Results
Narcotic Drug	40. 0	41. 9
Depressant Drug	42. 0	43. 9
Stimulant Drug	44. 0	45. 9
Hallucinogen Drug	46. 0	47. 9
Cannabinoid Drug	48. 0	49. 9
Phencyclidine (PCP)	50. 0	51. 9
Inhalant Drug	52. 0	53. 9
Other Drug (Excluding Nicotine, Aspirin, Alcohol, Drugs Administered Post-Crash)	54. 0	55. 9

Codes For DEC Test Results

(0) No DEC test given
(1) Passed DEC test
(2) Failed DEC test
(3) DEC test given—results unknown
(8) No driver present
(9) Unknown if DEC test given

Codes for Specimen Test Results

(0) No specimen test given
(1) Drug not found in specimen
(2) Drug found in specimen
(7) Specimen test given, results unknown or not obtained
(8) No driver present
(9) Unknown if specimen test given

OTHER DATA

56. Driver's Zip Code [redacted]

(00000) Driver not present
(00001) Driver not a resident of U.S. or territories
_____ Code actual 5-digit zip code
(99999) Unknown

57. Driver's Race/Ethnic Origin 1
(0) Driver not present
(1) White (non-Hispanic)
(2) Black (non-Hispanic)
(3) White (Hispanic)
(4) Black (Hispanic)
(5) American Indian, Eskimo or Aleut
(6) Asian or Pacific Islander
(8) Other (specify):
_____
(9) Unknown

58. Vehicle Special Use (This Trip) 0
(0) No special use
(1) Taxi
(2) Vehicle used as school bus
(3) Vehicle used as other bus
(4) Military
(5) Police
(6) Ambulance
(7) Fire truck or car
(8) Other (specify): _____
(9) Unknown

ROLLOVER DATA

If GV07 (Body Type) ≠ 1-49, leave GV59-GV63 blank.
If GV24 (Rollover) = 0, then GV59-GV63 must equal 0.
If GV24 = 9, then GV59-GV63 must equal 9.

59. Rollover Initiation Type 0
(0) No rollover
(1) Trip-over
(2) Flip-over
(3) Turn-over
(4) Climb-over
(5) Fall-over
(6) Bounce-over
(7) Collision with another vehicle
(8) Other rollover initiation type specify):
_____
(9) Unknown rollover initiation type

60. Location of Rollover Initiation 0
(0) No rollover
(1) On roadway
(2) On shoulder—paved
(3) On shoulder—unpaved
(4) On roadside or divided trafficway median
(9) Unknown

61. Rollover Initiation Object Contacted 0 0

62. Location on Vehicle Where Initial Principal Tripping Force Is Applied 0
(0) No rollover
(1) Wheels/tires
(2) Side plane
(3) End plane
(4) Undercarriage
(5) Other location on vehicle (specify):
_____
(8) Non-contact rollover forces (specify):
_____
(9) Unknown

63. Direction of Initial Roll 0
(0) No rollover
(1) Roll right - primarily about the longitudinal axis
(2) Roll left - primarily about the longitudinal axis
(5) End-over-end (i.e., primarily about the lateral axis)
(9) Unknown roll direction

PRECRASH DATA

64. Pre-Event Movement (Prior to Recognition of Critical Event) 1 3
(01) Going straight
(02) Slowing or stopping in traffic lane
(03) Starting in traffic lane
(04) Stopped in traffic lane
(05) Passing or overtaking another vehicle
(06) Disabled or parked in travel lane
(07) Leaving a parking position
(08) Entering a parking position
(09) Turning right
(10) Turning left
(11) Making a U-turn
(12) Backing up (other than for parking position)
(13) Negotiating a curve
(14) Changing lanes
(15) Merging
(16) Successful avoidance maneuver to a previous critical event
(97) Other (specify):
_____
(98) No driver present
(99) Unknown

PRECRASH DATA (Continued)

65. Critical Precrash Event 06

This Vehicle Loss of Control Due To:
(01) Blow out or flat tire
(02) Stalled engine
(03) Disabling vehicle failure (e.g., wheel fell off) (specify): _____
(04) Non-disabling vehicle problem (e.g., hood flew up) (specify): _____
(05) Poor road conditions (puddle, pot hole, ice, etc.) (specify): _____
(06) Traveling too fast for conditions
(08) Other cause of control loss (specify): _____
(09) Unknown cause of control loss

This Vehicle Traveling
(10) Over the lane line on left side of travel lane
(11) Over the lane line on right side of travel lane
(12) Off the edge of the road on the left side
(13) Off the edge of the road on the right side
(14) End departure
(15) Turning left at intersection
(16) Turning right at intersection
(17) Crossing over (passing through) intersection
(19) Unknown travel direction

Other Motor Vehicle In Lane
(50) Stopped
(51) Traveling in same direction with lower speed (i.e., lower steady speed or decelerating)
(52) Traveling in same direction with higher speed
(53) Traveling in opposite direction
(54) In crossover
(55) Backing
(59) Unknown travel direction of other motor vehicle in lane

Other Motor Vehicle Encroaching Into Lane
(60) From adjacent lane (same direction)—over left lane line
(61) From adjacent lane (same direction)—over right lane line
(62) From opposite direction—over left lane line
(63) From opposite direction—over right lane line
(64) From parking lane
(65) From crossing street, turning into same direction
(66) From crossing street, across path
(67) From crossing street, turning into opposite direction
(68) From crossing street, intended path not known
(70) From driveway, turning into same direction
(71) From driveway, across path
(72) From driveway, turning into opposite direction
(73) From driveway, intended path not known
(74) From entrance to limited access highway
(78) Encroachment by other vehicle—details unknown

Pedestrian or Pedalcyclist, or Other Nonmotorist
(80) Pedestrian in roadway
(81) Pedestrian approaching roadway
(82) Pedestrian - unknown location
(83) Pedalcyclist or other nonmotorist in roadway (specify): _____
(84) Pedalcyclist or other nonmotorist approaching roadway (specify): _____
(85) Pedalcyclist or other nonmotorist—unknown location (specify): _____

Object or Animal
(87) Animal in roadway
(88) Animal approaching roadway
(89) Animal—unknown location
(90) Object in roadway
(91) Object approaching roadway
(92) Object—unknown location

(98) Other critical precrash event (specify): _____
(99) Unknown

For Corrective Actions Attempted see variable GV14 (Attemped Avoidance Manuever)

66. Precrash Stability After Avoidance Maneuver 7
(0) No avoidance maneuver
(1) Tracking
(2) Skidding longitudinally—rotation less than 30 degrees
(3) Skidding laterally—clockwise rotation
(4) Skidding laterally—counterclockwise rotation
(7) Other vehicle loss-of-control (specify): _____
(8) No driver present
(9) Precrash stability unknown

67. Precrash Directional Consequences of Avoidance Maneuver (Corrective Action) 2
(0) No avoidance maneuver
(1) Vehicle stayed in travel lane where avoidance maneuver was initiated
(2) Vehicle stayed on roadway but left travel lane where avoidance maneuver was initiated
(3) Vehicle stayed on roadway, not known if left travel lane where avoidance maneuver was initiated
(4) Vehicle departed roadway
(5) Avoidance maneuver initiated off roadway
(8) No driver present
(9) Directional consequences unknown

***** IF THE CDS APPLICABLE VEHICLE WAS NOT INSPECTED (I.E., GV35 = 0), *****
DO NOT COMPLETE THE EXTERIOR AND INTERIOR VEHICLE FORMS.

***** IF GV07 DOES NOT EQUAL 01-49, DO NOT COMPLETE *****
THE EXTERIOR VEHICLE, INTERIOR VEHICLE,
OCCUPANT ASSESSMENT, AND OCCUPANT INJURY FORMS.

U.S. Department of Transportation
National Highway Traffic Safety Administration

EXTERIOR VEHICLE FORM

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number ____
2. Case Number - Stratum 93-08
3. Vehicle Number 01

VEHICLE IDENTIFICATION

VIN 1GILT53G3MY_____ Model Year 91

Vehicle Make (specify): Chevrolet Vehicle Model (specify): Corsica LT

LOCATOR

Locate the end of the damage with respect to the vehicle longitudinal center line or bumper corner for end impacts or an undamaged axle for side impacts.

Specific Impact No.	Location of Direct Damage	Location of Field L
1	Contact begins 2.5cm (1") right of ℄	Entire frontal plane

CRUSH PROFILE IN CENTIMETERS

NOTES: Identify the plane at which the C-measurements are taken (e.g., at bumper, above bumper, at sill, above sill, etc.) and label adjustments (e.g., free space).

Measure and document on the vehicle diagram the location of maximum crush.

Measure C1 to C6 from driver to passenger side in front or rear impacts and rear to front in side impacts.

Free space value is defined as the distance between the baseline and the original body contour taken at the individual C locations. This may include the following: bumper lead, bumper taper, side protrusion, side taper, etc. Record the value for each C-measurement and maximum crush.

Use as many lines/columns as necessary to describe each damage profile.

Specific Impact Number	Plane of Impact C-Measurements	Direct Damage Width (CDC)	Direct Damage Max Crush	Field L	C_1	C_2	C_3	C_4	C_5	C_6	±D
1	Bumper	40.6cm (16")	4.4cm (1.75")		12.7cm (5")	3.8cm (1.5")	0.5cm (0.2")	1.3cm (0.5")	4.4cm (1.75")	11.4cm (4.5")	23.9cm (9")
	Free-space		2.5cm (1.0")		11.4cm (4.5")	2.5cm (1")	0.6cm (0.25")	0.6cm (0.25")	2.5cm (1.0")	11.4cm (4.5")	
	Resultant		1.9cm (0.75")		1.3cm (0.5")	1.3cm (0.5")	0	0.6cm (0.25")	1.9cm (0.75")	0	
Lower Radiator	Below bumper		57.2cm (22.5")		37.3cm (14.7")	35.6cm (14")	44.7cm (17.6")	57.2cm (22.5")	47.0 (18.5")	40.6 (16")	
Support bar			25.4cm (10.0")		27.9cm (11.0")	25.4cm (10.0")	25.4cm (10.0")	25.4cm (10.0")	25.4cm (10.0")	27.9cm (11.0")	
			31.8cm (12.5")		9.4cm (3.7")	10.2cm (4.0")	14.3cm (7.6")	31.8cm (12.5")	21.6cm (8.5")	12.7cm (5.0")	

ORIGINAL SPECIFICATIONS WORK SHEET

Wheelbase	103.4	inches	x 2.54	=	263	cm
Overall Length	183.4	inches	x 2.54	=	466	cm
Maximum Width	68.2	inches	x 2.54	=	173	cm
Curb Weight	2,638	pounds	x .4536	=	1,197	kg
Average Track	55.6	inches	x 2.54	=	141	cm
Front Overhang	38.4	inches	x 2.54	=	98	cm
Rear Overhang	41.6	inches	x 2.54	=	106	cm
Undeformed End Width	53.0	inches	x 2.54	=	135	cm
Engine Size: cyl./displ. (4)	____	cc	x .001	=	2.21	
	___	CID	x .0164	=	___	L

VEHICLE DAMAGE SKETCH

TIRE—WHEEL DAMAGE

a. Rotation physically restricted

RF 2
LF 2
RR 2
LR 2

b. Tire deflated

RF 2
LF 2
RR 2
LR 2

(1) Yes (2) No (8) NA (9) Unk.

TYPE OF TRANSMISSION

☐ Manual ☒ Automatic

ORIGINAL SPECIFICATIONS

Wheelbase	263 (103.4")	cm
Overall Length	466 (183.4")	cm
Maximum Width	173 (68.2")	cm
Curb Weight	1,197 (2638 lb.)	kg
Average Track	141 (55.6")	cm
Front Overhang	98 (38.4")	cm
Rear Overhang	106 (41.6")	cm
Undeformed End Width	135 (53")	cm
Engine Size: cyl./displ.	4 / 2.2	L

WHEEL STEER ANGLES

(For locked front wheels or displaced rear axles only)

RF ± ___ o
LF ± ___ o
RR ± ___ o
LR ± ___ o

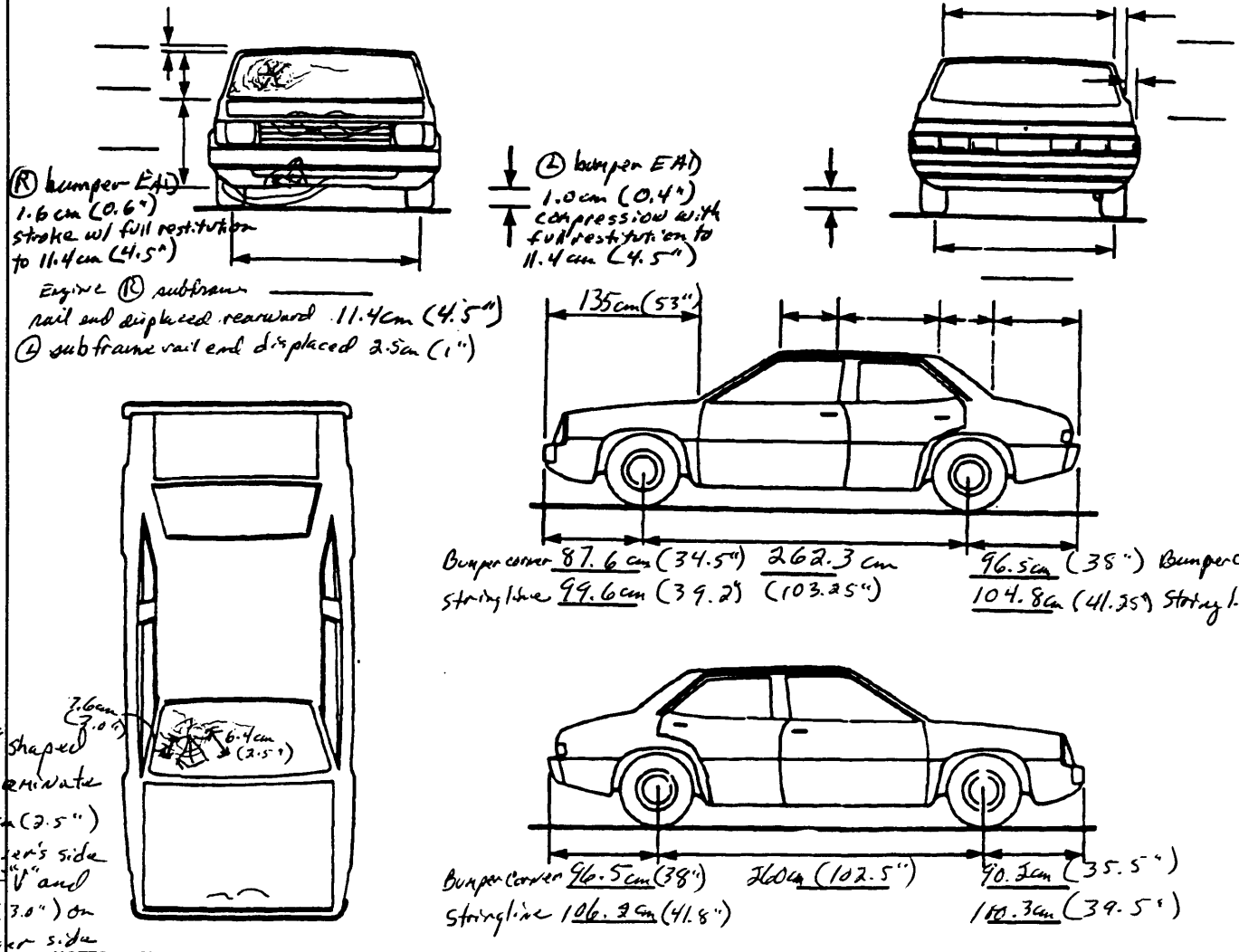
Within ± 5 degrees

DRIVE WHEELS

☑ FWD ☐ RWD ☐ 4WD

Approximate Cargo Weight 0 kg

MEASUREMENTS IN CENTIMETERS



NOTES: Sketch new perimeter and cross hatch direct damage and single hatch induced damage on all views. Annotate observations which might be useful in reconstructing the accident (e.g., grass in tire bead, direction of striations, scuff on sidewalls, etc.). If pulling trailer, sketch type of trailer and damage received on the back of this page.

Annotate any damage caused by extrication such as component removal by torching, prying, or hydraulic shears.

CDC WORKSHEET

CODES FOR OBJECT CONTACTED

(01-30) — Vehicle Number

Noncollision
- (31) Overturn — rollover
- (32) Fire or explosion
- (33) Jackknife
- (34) Other intraunit damage (specify): _____
- (35) Noncollision injury
- (38) Other noncollision (specify): _____
- (39) Noncollision — details unknown

Collision With Fixed Object
- (41) Tree (≤ 10 cm in diameter)
- (42) Tree (> 10 cm in diameter)
- (43) Shrubbery or bush
- (44) Embankment
- (45) Breakaway pole or post (any diameter)

Nonbreakaway Pole or Post
- (50) Pole or post (≤ 10 cm in diameter)
- (51) Pole or post (> 10 cm but ≤ 30 cm in diameter)
- (52) Pole or post (> 30 cm in diameter)
- (53) Pole or post (diameter unknown)
- (54) Concrete traffic barrier
- (55) Impact attenuator
- (56) Other traffic barrier (includes guardrail) (specify): _____
- (57) Fence
- (58) Wall
- (59) Building
- (60) Ditch or culvert
- (61) Ground
- (62) Fire hydrant
- (63) Curb
- (64) Bridge
- (68) Other fixed object (specify): _____
- (69) Unknown fixed object

Collision with Nonfixed Object
- (71) Motor vehicle not in-transport
- (72) Pedestrian
- (73) Cyclist or cycle
- (74) Other nonmotorist or conveyance _____
- (75) Vehicle occupant
- (76) Animal
- (77) Train
- (78) Trailer, disconnected in transport
- (88) Other nonfixed object (specify): _____
- (89) Unknown nonfixed object
- (98) Other event (specify): _____
- (99) Unknown event or object

DEFORMATION CLASSIFICATION BY EVENT NUMBER

Accident Event Sequence Number	Object Contacted	(1) (2) Direction of Force (degrees)	Incremental Value of Shift	(3) Deformation Location	(4) Specific Longitudinal or Lateral Location	(5) Specific Vertical or Lateral Location	(6) Type of Damage Distribution	(7) Deformation Extent
01	60	000	00	F	Z	L	W	02

COLLISION DEFORMATION CLASSIFICATION

HIGHEST DELTA "V"

Accident Event Sequence Number	Object Contacted	(1) (2) Direction of Force	(3) Deformation Location	(4) Longitudinal or Lateral Location	(5) Vertical or Lateral Location	(6) Type of Damage Distribution	(7) Deformation Extent
4. 01	5. 60	6. 12	7. F	8. Z	9. L	10. W	11. 02

Second Highest Delta "V"

12.	13.	14.	15.	16.	17.	18.	19.

CRUSH PROFILE IN CENTIMETERS

The crush profile for the damage described in the CDC(s) above should be documented in the appropriate space below. (ALL MEASUREMENTS ARE IN CENTIMETERS.)

HIGHEST DELTA "V"

20. L	21. C_1	C_2	C_3	C_4	C_5	C_6	22. ±D
135	009	010	019	032	022	013	(+) -023

Second Highest Delta "V"

23. L	24. C_1	C_2	C_3	C_4	C_5	C_6	25. ±D
							+ −

26. Are CDCs Documented but Not Coded on The Automated File? 0
(0) No
(1) Yes

27. Researcher's Assessment of Vehicle Disposition 1
(0) Not towed due to vehicle damage
(1) Towed due to vehicle damage
(9) Unknown

28. Original Wheelbase 263
Code to the nearest centimeter
(999) Unknown

103.4 inches X 2.54 = 263 centimeters

29. Is This A Multi-Stage Manufactured Vehicle And/Or A Certified Altered Vehicle? 0
    (0) No post manufacturer modifications
    (1) Yes - post manufacturer modifications (specify): _____
    _____
    _____
    (Include photograph of CERTIFICATION PLACARD in case report)
    (9) Unknown if vehicle is modified

30. Fire Occurrence 0
    (0) No fire

    Yes, fire occurred
    (1) Minor
    (2) Major
    (9) Unknown

31. Origin of Fire 0
    (0) No fire
    (1) Vehicle exterior (front, side, back, top)
    (2) Exhaust system
    (3) Fuel tank (and other fuel retention system parts)
    (4) Engine compartment
    (5) Cargo/trunk compartment
    (6) Instrument panel
    (7) Passenger compartment area
    (8) Other location (specify): _____
    (9) Unknown

32. Type of Fuel Tank 2
    (0) No fuel tank (electrical vehicle)
    (1) Metallic
    (2) Non-metallic
    (9) Unknown

*** STOP: IF THE CDS APPLICABLE VEHICLE WAS NOT TOWED AND WAS NOT AN AOPS *** (I.E., GV09=0 OR 9 AND GV36=0), DO NOT COMPLETE THE INTERIOR VEHICLE FORM.

U.S. Department of Transportation
National Highway Traffic Safety Administration

INTERIOR VEHICLE FORM

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number ____
2. Case Number - Stratum 93-08
3. Vehicle Number 01

INTEGRITY

4. Passenger Compartment Integrity 00
   (00) No integrity loss

   Yes, Integrity Was Lost Through
   (01) Windshield
   (02) Door (side)
   (03) Door/hatch (back door)
   (04) Roof
   (05) Roof glass
   (06) Side window
   (07) Rear window (backlight)
   (08) Roof and roof glass
   (09) Windshield and door (side)
   (10) Windshield and roof
   (11) Side and rear window (side window and backlight)
   (12) Windshield and side window
   (13) Door and side window
   (98) Other combination of above (specify): _____
   (99) Unknown

Door, Tailgate or Hatch Opening

5. LF 1 6. RF 1 7. LR 1 8. RR 1 9. TG/H 0

   (0) No door/gate/hatch
   (1) Door/gate/hatch remained closed and operational
   (2) Door/gate/hatch came open during collision
   (3) Door/gate/hatch jammed shut
   (8) Other (specify): _____
   (9) Unknown

Damage/Failure Associated with Door, Tailgate or Hatch Opening in Collision. If IV05-IV09 ≠ 2, Then code Ø

10. LF 0 11. RF 0 12. LR 0 13. RR 0 14. TG/H 0

   (0) No door/gate/hatch or door not opened

   Door, Tailgate or Hatch Came Open During Collision
   (1) Door operational (no damage)
   (2) Latch/striker failure due to damage
   (3) Hinge failure due to damage
   (4) Door structure failure due to damage
   (5) Door support (i.e., pillar, sill, roof side rail, etc.) failure due to damage
   (6) Latch/striker and hinge failure due to damage
   (8) Other failure (specify): _____
   (9) Unknown

GLAZING

Glazing Damage from Impact Forces

15. WS 0 16. LF 0 17. RF 0 18. LR 0 19. RR 0
20. BL 0 21. Roof 8 22. Other 0

   (0) No glazing damage from impact forces
   (2) Glazing in place and cracked from impact forces
   (3) Glazing in place and holed from impact forces
   (4) Glazing out-of-place (cracked or not) and not holed from impact forces
   (5) Glazing out-of-place and holed from impact forces
   (6) Glazing disintegrated from impact forces
   (7) Glazing removed prior to accident
   (8) No glazing
   (9) Unknown if damaged

Glazing Damage from Occupant Contact

23. WS 2 24. LF 0 25. RF 0 26. LR 0 27. RR 0
28. BL 0 29. Roof 0 30. Other 0

   (0) No occupant contact to glazing or no glazing
   (1) Glazing contacted by occupant but no glazing damage
   (2) Glazing in place and cracked by occupant contact
   (3) Glazing in place and holed by occupant contact
   (4) Glazing out-of-place (cracked or not) by occupant contact and not holed by occupant contact
   (5) Glazing out-of-place by occupant contact and holed by occupant contact
   (6) Glazing disintegrated by occupant contact
   (9) Unknown if contacted by occupant

If No Glazing Damage *And* No Occupant Contact or No Glazing, Then Code IV31 Through IV46 As Ø

Type of Window/Windshield Glazing

31. WS 1 32. LF 0 33. RF 0 34. LR 0 35. RR 0
36. BL 0 37. Roof 0 38. Other 0

   (0) No glazing contact and no damage, or no glazing
   (1) AS-1 — Laminated
   (2) AS-2 — Tempered
   (3) AS-3 — Tempered-tinted
   (4) AS-14 — Glass/Plastic
   (8) Other (specify): _____
   (9) Unknown

Window Precrash Glazing Status

39. WS 1 40. LF 0 41. RF 0 42. LR 0 43. RR 0
44. BL 0 45. Roof 0 46. Other 0

   (0) No glazing contact and no damage, or no glazing
   (1) Fixed
   (2) Closed
   (3) Partially opened
   (4) Fully opened
   (9) Unknown

OCCUPANT AREA INTRUSION

Note: If no intrusions, leave variables IV47-IV86 blank.

	Location of Intrusion	Intruding Component	Magnitude of Intrusion	Dominant Crush Direction
	There were no intruded components			
1st	47.___ ___	48.___ ___	49.___	50.___
2nd	51.___ ___	52.___ ___	53.___	54.___
3rd	55.___ ___	56.___ ___	57.___	58.___
4th	59.___ ___	60.___ ___	61.___	62.___
5th	63.___ ___	64.___ ___	65.___	66.___
6th	67.___ ___	68.___ ___	69.___	70.___
7th	71.___ ___	72.___ ___	73.___	74.___
8th	75.___ ___	76.___ ___	77.___	78.___
9th	79.___ ___	80.___ ___	81.___	82.___
10th	83.___ ___	84.___ ___	85.___	86.___

LOCATION OF INTRUSION

Front Seat
- (11) Left
- (12) Middle
- (13) Right

Second Seat
- (21) Left
- (22) Middle
- (23) Right

Third Seat
- (31) Left
- (32) Middle
- (33) Right

Fourth Seat
- (41) Left
- (42) Middle
- (43) Right

- (97) Catastrophic
- (98) Other enclosed area (specify) _____
- (99) Unknown

INTRUDING COMPONENT

Interior Components
- (01) Steering assembly
- (02) Instrument panel left
- (03) Instrument panel center
- (04) Instrument panel right
- (05) Toe pan
- (06) A (A1/A2)-pillar
- (07) B-pillar
- (08) C-pillar
- (09) D-pillar
- (10) Door panel (side)
- (12) Roof (or convertible top)
- (13) Roof side rail
- (14) Windshield
- (15) Windshield header
- (16) Window frame
- (17) Floor pan (includes sill)
- (18) Backlight header
- (19) Front seat back
- (20) Second seat back
- (21) Third seat back
- (22) Fourth seat back
- (23) Fifth seat back
- (24) Seat cushion
- (25) Back door/panel (e.g., tailgate)
- (26) Other interior component (specify): _____
- (27) Side panel - forward of the A (A2)-pillar
- (28) Side panel - rear of the A (A2)-pillar

Exterior Components
- (30) Hood
- (31) Outside surface of this vehicle (specify): _____
- (32) Other exterior object in the environment (specify): _____
- (33) Unknown exterior object
- (97) Catastrophic
- (98) Intrusion of unlisted component(s) (specify): _____
- (99) Unknown

MAGNITUDE OF INTRUSION
- (1) ≥ 3 centimeters but < 8 centimeters
- (2) ≥ 8 centimeters but < 15 centimeters
- (3) ≥ 15 centimeters but < 30 centimeters
- (4) ≥ 30 centimeters but < 46 centimeters
- (5) ≥ 46 centimeters but < 61 centimeters
- (6) ≥ 61 centimeters
- (7) Catastrophic
- (9) Unknown

DOMINANT CRUSH DIRECTION
- (1) Vertical
- (2) Longitudinal
- (3) Lateral
- (7) Catastrophic
- (9) Unknown

STEERING COLUMN

87. Steering Column Type — 2
(1) Fixed column
(2) Tilt column
(3) Telescoping column
(4) Tilt and telescoping column
(8) Other column type (specify): _____
(9) Unknown

Adjusted in center position

88. Blank — X X
(This variable is left blank so that numbering consistency can be maintained with the 1988-93 CDS.

89. Blank — X X X
(This variable is left blank so that numbering consistency can be maintained with the 1988-93 CDS.

90. Blank — X X X
(This variable is left blank so that numbering consistency can be maintained with the 1988-93 CDS.

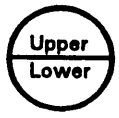
91. Blank — X X X
(This variable is left blank so that numbering consistency can be maintained with the 1988-93 CDS.

92. Steering Rim/Spoke Deformation — 0 0
_____Code actual measured deformation to the nearest centimeter
(00) No steering rim deformation
(01-14) Actual measured value in centimeters
(15) 15 centimeters or more
(98) Observed deformation cannot be measured
(99) Unknown

93. Location of Steering Rim/Spoke Deformation — 0 0
(00) No steering rim deformation

Quarter Sections
(01) Section A
(02) Section B
(03) Section C
(04) Section D

Half Sections
(05) Upper half of rim/spoke
(06) Lower half of rim/spoke
(07) Left half of rim/spoke
(08) Right half of rim/spoke



(09) Complete steering wheel collapse
(10) Undetermined location
(99) Unknown

INSTRUMENT PANEL

94. Odometer Reading — 0 5 7,000
_____kilometers—Code to the nearest 1,000 kilometers
(000) No odometer
(001) Less than 1,500 kilometers
(500) 499,500 kilometers or more
(999) Unknown

35,126 miles X 1.6093 = 56,528 kilometers

Source: _____

95. Instrument Panel Damage from Occupant Contact? — 1
(0) No
(1) Yes
(9) Unknown

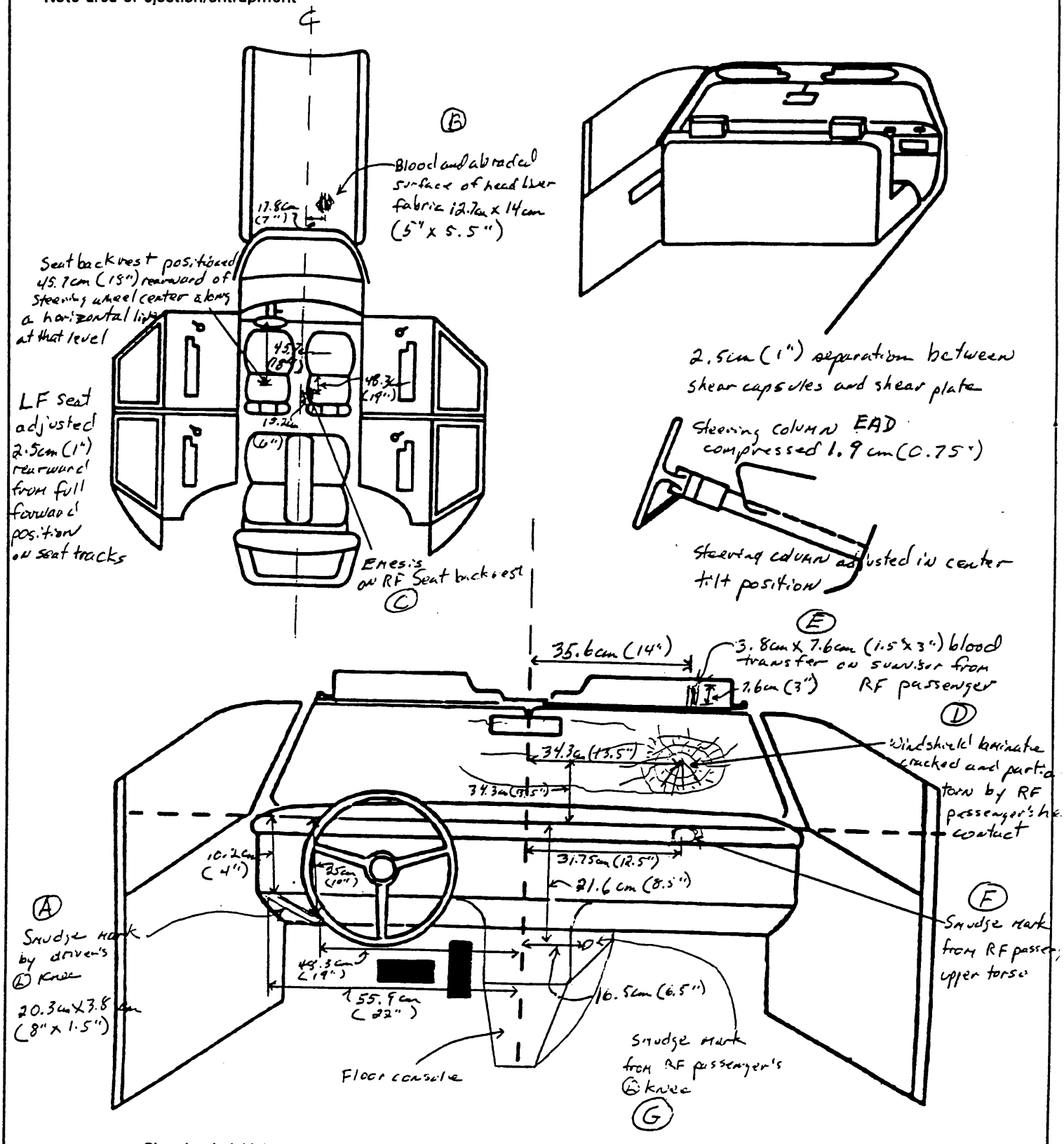
96. Knee Bolsters Deformed from Occupant Contact? — 0
(0) No
(1) Yes
(8) Not present
(9) Unknown

97. Did Glove Compartment Door Open During Collision(s)? — 0
(0) No
(1) Yes
(8) Not present
(9) Unknown

VEHICLE INTERIOR SKETCHES

BEST AVAILABLE COPY

Note area of ejection/entrapment



Sketch windshield contact(s) and the damaged area(s) on the instrument panel outline (e.g., radio, glove compartment, damage to instrument panel structure.
Cross hatch contact points, draw spider webs or use other annotation as may be appropriate.
Annotate the contacted area with a letter (begin with A) and list on the Points of Occupant Contact page.

POINTS OF OCCUPANT CONTACT

Contact	Interior Component Contacted	Occupant No. If Known	Body Region If Known	Supporting Physical Evidence	Confidence Level of Contact Point
A	13	Driver	(L) Knee	Smudge mark	1
B	49	RF passenger	Head	Blood and abraded surface of fabric	2
C	40	RF passenger	Hips	Emesis transfer from clothing	2
D	01	RF passenger	Head	Laminate tear w/ typical spider-web pattern	1
E	03	RF passenger	Head	Blood transfer	2
F	11	RF passenger	Chest	Smudge mark	2
G	57	RF passenger	(L) Knee	Small light smudge mark	2
H					
I					
J					
K					
L					
M					
N					

CODES FOR INTERIOR COMPONENTS

FRONT
- (01) Windshield
- (02) Mirror
- (03) Sunvisor
- (04) Steering wheel rim
- (05) Steering wheel hub/spoke
- (06) Steering wheel (combination of codes 04 and 05)
- (07) Steering column, transmission selector lever, other attachment
- (08) Add on equipment (e.g., CB, tape deck, air conditioner)
- (09) Left instrument panel and below
- (10) Center instrument panel and below
- (11) Right instrument panel and below
- (12) Glove compartment door
- (13) Knee bolster
- (14) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (15) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)
- (16) Driver side air bag compartment cover
- (17) Passenger side air bag compartment cover
- (18) Windshield reinforced by exterior object (specify):_____
- (19) Other front object (specify):_____

LEFT SIDE
- (20) Left side interior surface, excluding hardware or armrests
- (21) Left side hardware or armrest
- (22) Left A (A1/A2)-pillar
- (23) Left B-pillar
- (24) Other left pillar (specify):_____
- (25) Left side window glass or frame
- (26) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
- (27) Other left side object (specify):_____
- (28) Left side window sill

RIGHT SIDE
- (30) Right side interior surface, excluding hardware or armrests
- (31) Right side hardware or armrest
- (32) Right A (A1/A2)-pillar
- (33) Right B-pillar
- (34) Other right pillar (specify):_____
- (35) Right side window glass or frame
- (36) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B pillar, or roof side rail.
- (37) Other right side object (specify):_____
- (38) Right side window sill

INTERIOR
- (40) Seat, back support
- (41) Belt restraint webbing/buckle
- (42) Belt restraint B-pillar attachment point
- (43) Other restraint system component (specify):_____
- (44) Head restraint system
- (45) Air bag (use codes "16" and "17" for injuries sustained from air bag compartment covers)
- (46) Other occupants (specify):_____
- (47) Interior loose objects
- (48) Child safety seat (specify):_____
- (49) Other interior object (specify): Headliner

ROOF
- (50) Front header
- (51) Rear header
- (52) Roof left side rail
- (53) Roof right side rail
- (54) Roof or convertible top

FLOOR
- (56) Floor (including toe pan)
- (57) Floor or console mounted transmission lever, including console
- (58) Parking brake handle
- (59) Foot controls including parking brake

REAR
- (60) Backlight (rear window)
- (61) Backlight storage rack, door, etc.
- (62) Other rear object (specify):_____

CONFIDENCE LEVEL OF CONTACT POINT
- (1) Certain
- (2) Probable
- (3) Possible
- (9) Unknown

AUTOMATIC RESTRAINTS

NOTES: Encode the data for each applicable front seat position. The attribute for the variables may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

AIR BAGS

		Left	Right
FIRST	Availability/Function	1	0
	Deployment	1	0
	Failure	1	0

Air Bag System Availability/Function
- (0) Not equipped/not available
- (1) Air bag

Non-functional
- (2) Air bag disconnected (specify): _____
- (3) Air bag not reinstalled
- (9) Unknown

Air Bag System Deployment
- (0) Not equipped/not available
- (1) Air bag deployed during accident (as a result of impact)
- (2) Air bag deployed inadvertently just prior to accident
- (3) Air bag deployed, accident sequence undetermined
- (4) Nondeployed
- (5) Unknown if deployed
- (6) Air bag deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
- (9) Unknown

Did Air Bag System Fail?
- (0) Not equipped/not available
- (1) No
- (2) Yes (specify): _____
- (9) Unknown

AUTOMATIC BELTS

		Left	Right
FIRST	Availability/Function	0	0
	Use		
	Type		
	Proper Use		
	Failure Modes		

Automatic (Passive) Belt System Availability/Function
- (0) Not equipped/not available
- (1) 2 point automatic belts
- (2) 3 point automatic belts
- (3) Automatic belts - type unknown

Non-functional
- (4) Automatic belts destroyed or rendered inoperative
- (9) Unknown

Automatic (Passive) Belt System Use
- (0) Not equipped/not available/destroyed or rendered inoperative
- (1) Automatic belt in use
- (2) Automatic belt not in use (manually disconnected, motorized track inoperative)
- (3) Automatic belt use unknown
- (9) Unknown

Automatic (Passive) Belt System Type
- (0) Not equipped/not available
- (1) Non-motorized system
- (2) Motorized system
- (9) Unknown

Proper Use of Automatic (Passive) Belt System
- (0) Not equipped/not available/not used
- (1) Automatic belt used properly
- (2) Automatic belt used properly with child safety seat

Automatic Belt Used Improperly
- (3) Automatic shoulder belt worn under arm
- (4) Automatic shoulder belt worn behind back
- (5) Automatic belt worn around more than one person
- (6) Lap portion of automatic belt worn on abdomen
- (7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify): _____
- (8) Other improper use of automatic belt system (specify): _____
- (9) Unknown

Automatic (Passive) Belt Failure Modes During Accident
- (0) Not equipped/not available/not in use
- (1) No automatic belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): _____
- (6) Broken retractor
- (7) Combination of above (specify):
- (8) Other automatic belt failure (specify): _____
- (9) Unknown

MANUAL RESTRAINTS

NOTES: Encode the applicable data **for each seat position** in the vehicle. The attribute for the variable may be found below. **Restraint systems should be assessed during the vehicle inspection then coded on the Ocupant Assessment Form.**

If a Child safety seat is present, encode the data on the back of this page.

If the vehicle has automatic restraints available, encode the appropriate data on the back of the previous page.

		Left	Center	Right
FIRST	Availability	4	0	4
	Use	0	0	0
	Failure Modes	0	0	0
SECOND	Availability	4	3	4
	Use	0	0	0
	Failure Modes	0	0	0
THIRD	Availability			
	Use			
	Failure Modes			
OTHER	Availability			
	Use			
	Failure Modes			

Manual (Active) Belt System Availability
- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available - type unknown

Integral Belt Partially Destroyed
- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)
- (8) Other belt (specify): _____
- (9) Unknown

Manual (Active) Belt System Use
- (00) None used, not available, or belt removed/destroyed
- (01) Inoperable (specify): _____
- (02) Shoulder belt
- (03) Lap belt
- (04) Lap and shoulder belt
- (05) Belt used - type unknown
- (08) Other belt used (specify): _____
- (12) Shoulder belt used with child safety seat
- (13) Lap belt used with child safety seat
- (14) Lap and shoulder belt used with child safety seat
- (15) Belt used with child safety seat - type unknown
- (18) Other belt used with child safety seat (specify): _____
- (99) Unknown if belt used

Manual (Active) Belt Failure Modes During Accident
- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): _____
- (6) Broken retractor
- (7) Combination of above (specify): _____
- (8) Other manual belt failure (specify): _____
- (9) Unknown

CHILD SAFETY SEAT FIELD ASSESSMENT

When a child safety seat is present enter the occupant's number in the first row and complete the column below the occupant's number using the codes listed below. Complete a column for each child safety seat present.

Occupant Number						
1. Type of Child Safety Seat	0					
2. Child Safety Seat Orientation	00					
3. Child Safety Seat Harness Usage	00					
4. Child Safety Seat Shield Uasge	00					
5. Child Safety Seat Tether Usage	00					
6. Child Safety Seat Make/Model	Specify Below for Each Child Safety Seat					

1. Type of Child Safety Seat
   - (0) No child safety seat
   - (1) Infant seat
   - (2) Toddler seat
   - (3) Convertible seat
   - (4) Booster seat
   - (7) Other type child safety seat (specify): _____
   - (8) Unknown child safety seat type
   - (9) Unknown if child safety seat used

2. Child Safety Seat Orientation
   - (00) No child safety seat

   Designed for Rear Facing for This Age/Weight
   - (01) Rear facing
   - (02) Forward facing
   - (08) Other orientation (specify): _____
   - (09) Unknown orientation

   Designed for Forward Facing for This Age/Weight
   - (11) Rear facing
   - (12) Forward facing
   - (18) Other orientation (specify): _____
   - (19) Unknown orientation

   Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight
   - (21) Rear facing
   - (22) Forward facing
   - (28) Other orientation (specify): _____
   - (29) Unknown orientation
   - (99) Unknown if child safety seat used

3. Child Safety Seat Harness Usage

4. Child Safety Seat Shield Usage

5. Child Safety Seat Tether Usage
   Note: Options Below Are Used for Variables 3-5.
   - (00) No child safety seat

   Not Designed with Harness/Shield/Tether
   - (01) After market harness/shield/tether added, not used
   - (02) After market harness/shield/tether used
   - (03) Child safety seat used, but no after market harness/shield/tether added
   - (09) Unknown if harness/shield/tether added or used

   Designed With Harness/Shield/Tether
   - (11) Harness/shield/tether not used
   - (12) Harness/shield/tether used
   - (19) Unknown if harness/shield/tether used

   Unknown If Designed With Harness/Shield/Tether
   - (21) Harness/shield/tether not used
   - (22) Harness/shield/tether used
   - (29) Unknown if harness/shield/tether used

   - (99) Unknown if child safety seat used

6. Child Safety Seat Make/Model
   (Specify make/model and occupant number)

   _____

   _____

   _____

   _____

HEAD RESTRAINTS SEAT EVALUATION

NOTES: Encode the applicable data for **each seat position** in the vehicle. The attribute for these variables may be found at the bottom of the page. Head restraint type/damage and seat type/performance should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

		Left	Center	Right
FIRST	Head Restraint Type/Damage	3		3
	Seat Type	01		01
	Seat Performance	1		1
	Seat Orientation	1		1
SECOND	Head Restraint Type/Damage	0	0	0
	Seat Type	03	03	03
	Seat Performance	1	1	1
	Seat Orientation	1	1	1
THIRD	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			
	Seat Orientation			
OTHER	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			
	Seat Orientation			

Head Restraint Type/Damage by Occupant at This Occupant Position

(0) No head restraints
(1) Integral — no damage
(2) Integral — damaged during accident
(3) Adjustable — no damage
(4) Adjustable — damaged during accident
(5) Add-on — no damage
(6) Add-on — damaged during accident
(8) Other Specify): _____
(9) Unknown

Seat Type (this Occupant Position)

(00) Occupant not seated or no seat
(01) Bucket
(02) Bucket with folding back
(03) Bench
(04) Bench with separate back cushions
(05) Bench with folding back(s)
(06) Split bench with separate back cushions
(07) Split bench with folding back(s)
(08) Pedestal (i.e., column supported)
(09) Other seat type (specify): _____
(10) Box mounted seat (i.e., van type)
(99) Unknown

Seat Performance (this Occupant Position)

(0) Occupant not seated or no seat
(1) No seat performance failure(s)
(2) Seat adjusters failed
(3) Seat back folding locks or "seat back" failed specify: _____
(4) Seat tracks/anchors failed
(5) Deformed by impact of occupant
(6) Deformed by passenger compartment intrusion (specify): _____
(7) Combination of above (specify): _____
(8) Other (specify): _____
(9) Unknown

Seat Orientation (this Occupant Position)

(0) Occupant not seated or no seat
(1) Forward facing seat
(2) Rear facing seat
(3) Side facing seat (inward)
(4) Side facing seat (outward)
(8) Other (specify): _____
(9) Unknown

DESCRIBE ANY INDICATION OF ABNORMAL OCCUPANT POSTURE (I.E., UNUSUAL OCCUPANT CONTACT PATTERN)

EJECTION/ENTRAPMENT DATA

Complete the following if the researcher has any indication that an occupant was either ejected from or entrapped in the vehicle. Code the appropriate data on the Occpant Assessment Form.

EJECTION No [✓] Yes [ ]

Describe indications of ejection and body parts involved in partial ejection(s):

Occupant Number						
Ejection						
(Note on Vehicle Interior Sketch) Ejection Area						
Ejection Medium						
Medium Status						

Ejection
(1) Complete ejection
(1) Partial ejection
(3) Ejection, Unknown degree
(9) Unknown

Ejection Area
(1) Windshield
(2) Left front
(3) Right front
(4) Left rear
(5) Right rear
(6) Rear
(7) Roof
(8) Other area (e.g., back of pickup, etc.) (specify): _____
(9) Unknown

Ejection Medium
(1) Door/hatch/tailgate
(2) Nonfixed roof structure
(3) Fixed glazing
(4) Nonfixed glazing (specify): _____
(5) Integral structure
(8) Other medium (specify): _____
(9) Unknown

Medium Status (Immediately Prior to Impact)
(1) Open
(2) Closed
(3) Integral structure
(9) Unknown

ENTRAPMENT No [✓] Yes [ ]

Describe entrapment mechanism: _____

Component(s): _____

(Note in vehicle interior diagram)

APPENDIX F

NASS Occupant Forms

U.S. Department of Transportation
National Highway Traffic Safety Administration

OCCUPANT ASSESSMENT FORM

Form Approved
O.M.B. No. 2127-0021

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number ____
2. Case Number - Stratum 93-08
3. Vehicle Number 01
4. Occupant Number 01

OCCUPANT'S CHARACTERISTICS

5. Occupant's Age 37
Code actual age at time of accident.
(00) Less than one year old (specify by month): _____
(97) 97 years and older
(99) Unknown

6. Occupant's Sex 2
(1) Male
(2) Female
(9) Unknown

7. Occupant's Height 157
Code actual height to the nearest centimeter.
(999) Unknown

62 inches X 2.54 = 157 centimeters

8. Occupant's Weight 059
Code actual weight to the nearest kilogram.
(999)Unknown

130 pounds X .4536 = 059 kilograms

9. Occupant's Role 1
(1) Driver
(2) Passenger
(9) Unknown

OCCUPANT'S SEATING

10. Occupant's Seat Position 11
Front Seat
(11) Left side
(12) Middle
(13) Right side
(14) Other (specify): _____
(15) On or in the lap of another occupant

Second Seat
(21) Left side
(22) Middle
(23) Right side
(24) Other (specify): _____
(25) On or in the lap of another occupant

Third Seat
(31) Left side
(32) Middle
(33) Right side
(34) Other (specify): _____
(35) On or in the lap of another occupant

Fourth Seat
(41) Left side
(42) Middle
(43) Right side
(44) Other (specify): _____
(45) On or in the lap of another occupant

(97) In or on unenclosed area
(98) Other seat (specify): _____
(99) Unknown

11. Occupant's Posture 9
(0) Normal posture

Abnormal posture
(1) Kneeling or standing on seat
(2) Lying on or across seat
(3) Kneeling, standing or sitting in front of seat
(4) Sitting sideways or turned to talk with another occupant or to look out a rear window
(5) Sitting on a console
(6) Lying back in a reclined seat position
(7) Bracing with feet or hands on a surface in front of seat
(8) Other abnormal posture (specify): _____
(9) Unknown

HS Form 433A (1/93)

EJECTION/ENTRAPMENT

12. Ejection 0
    (0) No ejection
    (1) Complete ejection
    (2) Partial ejection
    (3) Ejection, unknown degree
    (9) Unknown

13. Ejection Area 0
    (0) No ejection
    (1) Windshield
    (2) Left front
    (3) Right front
    (4) Left rear
    (5) Right rear
    (6) Rear
    (7) Roof
    (8) Other area (e.g., back of pickup, etc.) (specify):_____
    (9) Unknown

14. Ejection Medium 0
    (0) No ejection
    (1) Door/hatch/tailgate
    (2) Nonfixed roof structure
    (3) Fixed glazing
    (4) Nonfixed glazing (specify):
    _____
    (5) Integral structure
    (8) Other medium (specify):
    _____
    (9) Unknown

15. Medium Status (Immediately Prior To Impact) 0
    (0) No ejection
    (1) Open
    (2) Closed
    (3) Integral structure
    (9) Unknown

16. Entrapment 0
    (NOTE: Entrapped means that part of the person was in the vehicle and mechanically restrained; jammed doors and immobilizing injuries by themselves are not sufficient to constitute entrapment.)
    (0) Not entrapped
    (1) Entrapped
    (9) Unknown

RESTRAINT SYSTEM EVALUATION

17. Manual (Active) Belt System Availability 4
(0) None available
(1) Belt removed/destroyed
(2) Shoulder belt
(3) Lap belt
(4) Lap and shoulder belt
(5) Belt available—type unknown

Integral Belt Partially Destroyed
(6) Shoulder belt (lap belt destroyed/removed)
(7) Lap belt (shoulder belt destroyed/removed)

(8) Other belt (specify):

(9) Unknown

18. Manual (Active) Belt System Use 00
(00) None used, not available, or belt removed/destroyed
(01) Inoperative (specify):

(02) Shoulder belt
(03) Lap belt
(04) Lap and shoulder belt
(05) Belt used—type unknown
(08) Other belt used (specify):

(12) Shoulder belt used with child safety seat
(13) Lap belt used with child safety seat
(14) Lap and shoulder belt used with child safety seat
(15) Belt used with child safety seat—type unknown
(18) Other belt used with child safety seat (specify):
(99) Unknown if belt used

19. Proper Use of Manual (Active) Belts 0
(0) None used or not available
(1) Belt used properly
(2) Belt used properly with child safety seat

Belt Used Improperly
(3) Shoulder belt worn under arm
(4) Shoulder belt worn behind back or seat
(5) Belt worn around more than one person
(6) Lap belt worn on abdomen
(7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify):

(8) Other improper use of manual belt system (specify):

(9) Unknown

20. Manual (Active) Belt Failure Modes During Accident 0
(0) No manual belt used
(1) No manual belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify):

(6) Broken retractor
(7) Combination of above (specify):

(8) Other manual belt failure (specify):

(9) Unknown

21. Air Bag System Availability/Function 1
(0) Not equipped/not available
(1) Air bag

Non-functional
(2) Air bag disconnected (specify):

(3) Air bag not reinstalled
(9) Unknown

22. Air Bag System Deployment 1
(0) Not equipped/not available
(1) Air bag deployed during accident (as a result of impact)
(2) Air bag deployed inadvertently just prior to accident
(3) Air bag deployed, accident sequence undetermined
(4) Nondeployed
(5) Unknown if deployed
(6) Air bag deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
(9) Unknown

23. Are There Indications of Air Bag System Failure? 1
(0) Not equipped/not available
(1) No
(2) Yes (specify):

(9) Unknown

Note: See Variables 44 through 48 (Page 5) for Information on Automatic Belts

24. Police Reported Restraint Use 0
(0) None used
(1) Police did not indicate restraint use
(2) Shoulder belt
(3) Lap belt
(4) Lap and shoulder belt
(5) Belt used, type not specified
(6) Child safety seat
(7) Other or automatic restraint (specify):

(8) Restrained, type unknown
(9) Police indicated "unknown"

HEAD RESTRAINT AND SEAT EVALUATION

25. Head Restraint Type/Damage by Occupant at This Occupant Position — 3
    (0) No head restraints
    (1) Integral—no damage
    (2) Integral—damaged during accident
    (3) Adjustable—no damage
    (4) Adjustable—damaged during accident
    (5) Add-on—no damage
    (6) Add-on—damaged during accident
    (8) Other (specify): _____
    (9) Unknown

26. Seat Type (this Occupant Position) — 01
    (00) Occupant not seated or no seat
    (01) Bucket
    (02) Bucket with folding back
    (03) Bench
    (04) Bench with separate back cushions
    (05) Bench with folding back(s)
    (06) Split bench with separate back cushions
    (07) Split bench with folding back(s)
    (08) Pedestal (i.e., column supported)
    (09) Other seat type (specify): _____
    (10) Box mounted seat (i.e., van type)
    (99) Unknown

27. Seat Performance (this Occupant Position) — 1
    (0) Occupant not seated or no seat
    (1) No seat performance failure(s)
    (2) Seat adjusters failed
    (3) Seat back folding locks or "seat back" failed
    (4) Seat track/anchors failed
    (5) Deformed by impact of occupant
    (6) Deformed by passenger compartment intrusion (specify): _____
    (7) Combination of above (specify): _____
    (8) Other (specify): _____
    (9) Unknown

CHILD SAFETY SEAT

28. Child Safety Seat Make/Model 000
(000) No child safety seat
Applicable codes are found in your NASS CDS Data Collection, Coding and Editing
(950) Built-in child safety seat
(997) Other make/model (specify):
_____
(998) Unknown make/model
(999) Unknown if child safety seat used

29. Type of Child Safety Seat 0
(0) No child safety seat
(1) Infant seat
(2) Toddler seat
(3) Convertible seat
(4) Booster seat
(7) Other type child safety seat (specify):
_____
(8) Unknown child safety seat type
(9) Unknown if child safety seat used

30. Child Safety Seat Orientation 00
(00) No child safety seat

Designed for Rear Facing for This Age/Weight
(01) Rear facing
(02) Forward facing
(08) Other orientation (specify):
_____
(09) Unknown orientation

Designed For Forward Facing for This Age/Weight
(11) Rear facing
(12) Forward facing
(18) Other orientation (specify):
_____
(19) Unknown orientation

Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight
(21) Rear facing
(22) Forward facing
(28) Other orientation (specify):
_____
(29) Unknown orientation

(99) Unknown if child safety seat used

31. Child Safety Seat Harness Usage 00

32. Child Safety Seat Shield Usage 00

33. Child Safety Seat Tether Usage 00

Note: Options below applicable to Variables OA31-OA33.
(00) No child safety seat

Not Designed With Harness/Shield/Tether
(01) After market harness/shield/tether added, not used
(02) After market harness/shield/tether used
(03) Child safety seat used, but no after market harness/shield/tether added
(09) Unknown if harness/shield/tether added or used

Designed With Harness/Shield/Tether
(11) Harness/shield/tether not used
(12) Harness/shield/tether used
(19) Unknown if harness/shield/tether used

Unknown If Designed With Harness/Shield/Tether
(21) Harness/shield/tether not used
(22) Harness/shield/tether used
(29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used

INJURY CONSEQUENCES

34. Injury Severity (Police Rating) 4

(0) O - No injury
(1) C - Possible injury
(2) B - Nonincapacitating injury
(3) A - Incapacitating injury
(4) K - Killed
(5) U - Injury, severity unknown
(6) Died prior to accident
(9) Unknown

35. Treatment - Mortality 1
(0) No treatment
(1) Fatal
(2) Fatal - ruled disease (specify):

_____

Nonfatal
(3) Hospitalization
(4) Transported and released
(5) Treatment at scene - nontransported
(6) Treatment later
(8) Treatment - other (specify):

_____
(9) Unknown

36. Type Of Medical Facility (for Initial Treatment) 0
(0) Not treated at a medical facility
(1) Trauma center
(2) Hospital
(3) Medical clinic
(4) Physician's office
(5) Treatment later at medical facility
(8) Other (specify):

_____
(9) Unknown

37. Hospital Stay 00
(00) Not Hospitalized
____Code the number of days (up through 60) that the occupant stayed in hospital.
(61) 61 days or more
(99) Unknown

38. Working Days Lost 62
____Code the number of days (up through 60) that the occupant lost from work due to the accident
(00) No working days lost
(61) 61 days or more
(62) Fatally injured
(97) Not working prior to accident
(99) Unknown

STOP - GO TO VARIABLE 44 ON PAGE 7

VARIABLES 39 THROUGH 43 ARE COMPLETED BY THE ZONE CENTER

39. Time to Death 01
____Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 +n up through 30 days = 60)
(00) Not fatal
(96) Fatal - ruled disease
(99) Unknown

40. 1st Medically Reported Cause of Death 01

41. 2nd Medically Reported Cause of Death 00

42. 3rd Medically Reported Cause of Death 00
____Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death
(00) Not fatal or no additional causes
(97) Other result (includes fatal ruled disease) (specify):

_____
(99) Unknown

43. Number of Recorded Injuries for This Occupant 08
____Code the actual number of injuries recorded for this occupant.
(00) No recorded injuries
(97) Injured, details unknown
(99) Unknown if injured

AUTOMATIC BELT SYSTEM

44. Automatic (Passive) Belt System Availability/ Function — 0
(0) Not equipped/not available
(1) 2 point automatic belts
(2) 3 point automatic belts
(3) Automatic belts - type unknown

Non-functional
(4) Automatic belts destroyed or rendered inoperative
(9) Unknown

45. Automatic (Passive) Belt System Use — 0
(0) Not equipped/not available/destroyed or rendered inoperative
(1) Automatic belt in use
(2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify):
(3) Automatic belt use unknown
(9) Unknown

46. Automatic (Passive) Belt System Type — 0
(0) Not equipped/not available
(1) Non-motorized system
(2) Motorized system
(9) Unknown

47. Proper Use of Automatic (Passive Belt System — 0
(0) Not equipped/not available/not used
(1) Automatic belt used properly
(2) Automatic belt used properly with child safety seat

Automatic Belt Used Improperly
(3) Automatic shoulder belt worn under arm
(4) Automatic shoulder belt worn behind back
(5) Automatic belt worn around more than one person
(6) Lap portion of automatic belt worn on abdomen
(7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify):
(8) Other improper use of automatic belt system (specify):
(9) Unknown

48. Automatic (Passive) Belt Failure Modes During Accident — 0
(0) Not equipped/not available/not in use
(1) No automatic belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify):
(6) Broken retractor
(7) Combination of above (specify):
(8) Other automatic belt failure (specify):
(9) Unknown

49. Seat Orientation (this Occupant Position) — 1
(0) Occupant not seated or no seat
(1) Forward facing seat
(2) Rear facing seat
(3) Side facing seat (inward)
(4) Side facing seat (outward)
(8) Other (specify):
(9) Unknown

STOP - VARIABLES 50 THROUGH 52 ARE COMPLETED BY THE ZONE CENTER

TRAUMA DATA

50. Glasgow Coma Scale (GCS) Score (at Medical Facility) — 01
(00) Not injured
(01) Injured - not treated at medical facility
(02) No GCS Score at medical facility
(03-15) Code the actual value of the initial GCS Score recorded at medical facility.
(97) Injured, details unknown
(99) Unknown if injured

51. Was the Occupant Given Blood? — 1
(1) No - blood not given
(2) Yes - blood given (specify units):
(9) Unknown if blood given

52. Arterial Blood Gases (ABG) – HCO_3 — 01
(00) Not injured
(01) Injured, ABGs not measured or reported
(02-50) Code the actual value of the HCO_3
(96) ABGs reported , HCO_3 unknown
(97) Injured, details unknown
(99) Unknown if injured

ARE ALL APPLICABLE MEDICAL RECORDS INCLUDED WITH INITIAL SUBMISSION? NO [ ] YES [ ]

UPDATE CANDIDATE? NO [ ] YES [ ]

U.S. Department of Transportation
National Highway Traffic Safety Administration

OCCUPANT INJURY FORM

O.M.B. No. 2127-0021
NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number		3. Vehicle Number	01
2. Case Number - Stratum	93-08	4. Occupant Number	01

INJURY DATA

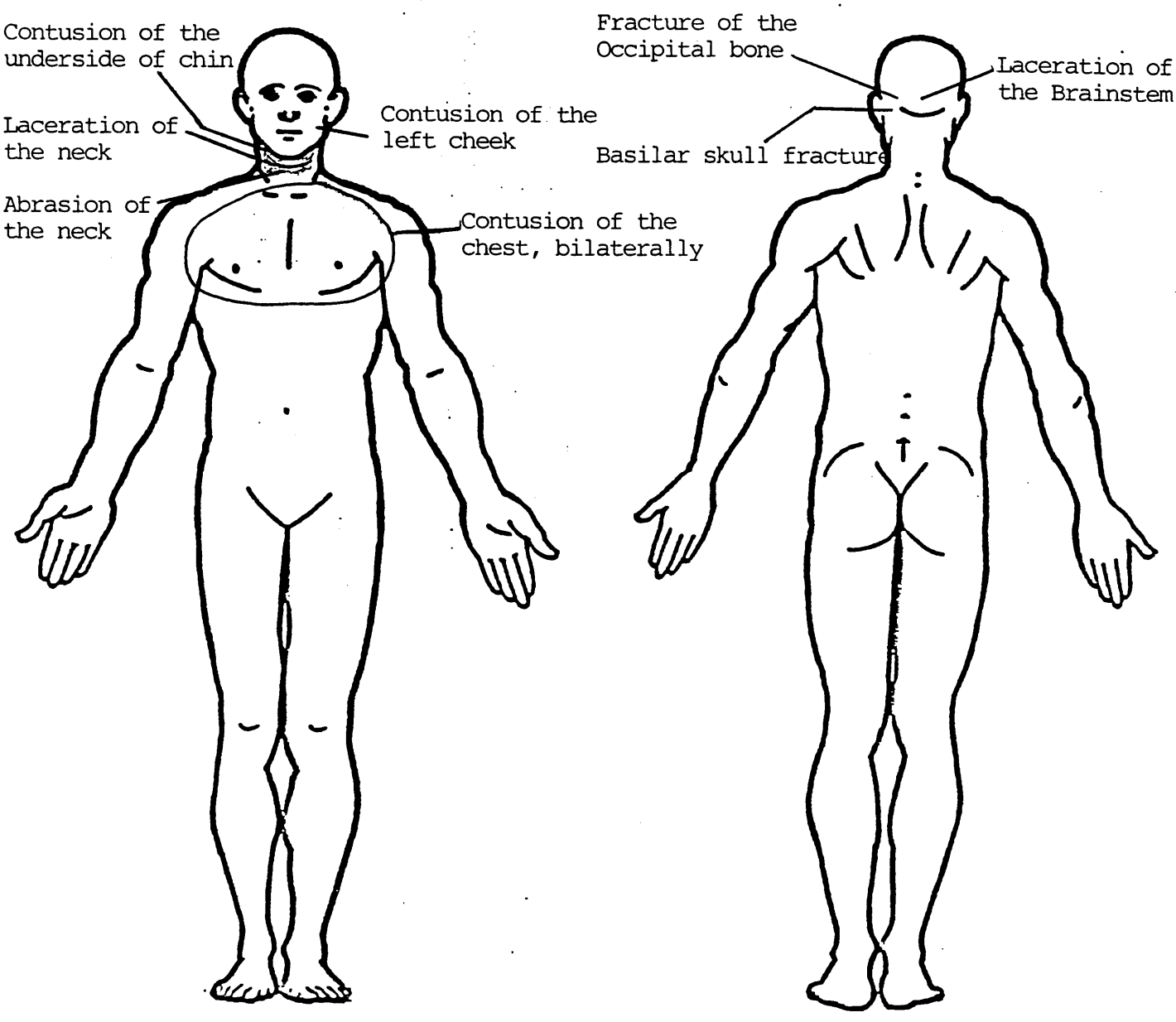
Record below the actual injuries sustained by this occupant that were identified from the official and unofficial data sources. Remember not to double count an injury just because it was identified from two different sources. If greater than ten injuries have been documented, encode the balance on the Occupant Injury Supplement.

	Source of Injury Data	O.I.C.-A.I.S Body Region	Type of Anatomic Structure	Specific Anatomic Structure	Level of Injury	A.I.S. Severity	Aspect	Injury Source	Injury Source Confidence Level	Direct/ Indirect Injury	Occupant Area Intrusion Number
Lac Brain stem 1st	5. 4	6. 1	7. 4	8. 02	9. 12	10. 6	11. 8	12. 45	13. 1	14. 1	15. 00
Basilar fx 2nd	16. 3	17. 1	18. 5	19. 02	20. 00	21. 3	22. 8	23. 45	24. 1	25. 1	26. 00
occipital bone fx 3rd	27. 3	28. 1	29. 5	30. 04	31. 00	32. 2	33. 6	34. 45	35. 1	36. 1	37. 00
Lac Neck 4th	38. 4	39. 3	40. 9	41. 06	42. 02	43. 1	44. 5	45. 16	46. 1	47. 1	48. 00
Abrasion neck 5th	49. 4	50. 3	51. 9	52. 02	53. 02	54. 1	55. 5	56. 16	57. 1	58. 1	59. 00
Chest contusion 6th	60. 4	61. 4	62. 9	63. 04	64. 02	65. 1	66. 0	67. 45	68. 1	69. 1	70. 00
Cheek contusion 7th	71. 4	72. 2	73. 9	74. 04	75. 02	76. 1	77. 2	78. 45	79. 1	80. 1	81. 02
Chin contusion 8th	82. 4	83. 2	84. 9	85. 04	86. 02	87. 1	88. 8	89. 16	90. 1	91. 1	92. 00
9th	93.	94.	95.	96.	97.	98.	99.	100.	101.	102.	103.
10th	104.	105.	106.	107.	108.	109.	110.	111.	112.	113.	114.

HS Form 433B (1/93)

This report is authorized by P.L. 89-563, Title 1, Section 106, 108, and 112. While you are not required to respond, your cooperation is needed to make the results of this data collection effort comprehensive, accurate, and timely.

Driver of the 1991 Chevrolet Corsica LT



SOURCE OF INJURY DATA

OFFICIAL
(1) Autopsy records with or without hospital/medical records
(2) Hospital/medical records other than emergency room (e.g., discharge summary)
(3) Emergency room records only (including associated X-rays or other lab reports)
(4) Private physician, walk-in or emergency clinic

UNOFFICIAL
(5) Lay coroner report
(6) E.M.S. personnel
(7) Interviewee
(8) Other source (specify):

(9) Police

INJURY SOURCE

FRONT
(01) Windshield
(02) Mirror
(03) Sunvisor
(04) Steering wheel rim
(05) Steering wheel hub/spoke
(06) Steering wheel (combination of codes 04 and 05)
(07) Steering column, transmission selector lever, other attachment
(08) Add on equipment (e.g., CB, tape deck, air conditioner)
(09) Left instrument panel and below
(10) Center instrument panel and below
(11) Right instrument panel and below
(12) Glove compartment door
(13) Knee bolster
(14) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)
(15) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)
(16) Driver side air bag compartment cover
(17) Passenger side air bag compartment cover
(18) Windshield reinforced by exterior object (specify):
(19) Other front object (specify):

LEFT SIDE
(20) Left side interior surface, excluding hardware or armrests
(21) Left side hardware or armrest
(22) Left A (A1/A2)-pillar
(23) Left B-pillar
(24) Other left pillar (specify):
(25) Left side window glass or frame
(26) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
(27) Other left side object (specify):
(28) Left side window sill

RIGHT SIDE
(30) Right side interior surface, excluding hardware or armrests
(31) Right side hardware or armrest
(32) Right A (A1/A2)-pillar
(33) Right B-pillar
(34) Other right pillar (specify):
(35) Right side window glass or frame
(36) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
(37) Other right side object (specify):
(38) Right side window sill

INTERIOR
(40) Seat, back support
(41) Belt restraint webbing/buckle
(42) Belt restraint B-pillar or door frame attachment point
(43) Other restraint system component (specify):
(44) Head restraint system
(45) Air bag (use codes "16" and "17" for injuries sustained from air bag compartment covers)
(46) Other occupants (specify):
(47) Interior loose objects
(48) Child safety seat (specify):
(49) Other interior object (specify):

ROOF
(50) Front header
(51) Rear header
(52) Roof left side rail
(53) Roof right side rail
(54) Roof or convertible top

FLOOR
(56) Floor (including toe pan)
(57) Floor or console mounted transmission lever, including console
(58) Parking brake handle
(59) Foot controls including parking brake

REAR
(60) Backlight (rear window)
(61) Backlight storage rack, door, etc.
(62) Other rear object (specify):

EXTERIOR of OCCUPANT'S VEHICLE
(65) Hood
(66) Outside hardware (e.g., outside mirror, antenna)
(67) Other exterior surface or tires (specify):
(68) Unknown exterior objects

EXTERIOR OF OTHER MOTOR VEHICLE
(70) Front bumper
(71) Hood edge
(72) Other front of vehicle (specify):
(73) Hood
(74) Hood ornament
(75) Windshield, roof rail, A-pillar
(76) Side surface
(77) Side mirrors
(78) Other side protrusions (specify)
(79) Rear surface
(80) Undercarriage
(81) Tires and wheels
(82) Other exterior of other motor vehicle (specify):
(83) Unknown exterior of other motor vehicle

OTHER VEHICLE OR OBJECT IN THE ENVIRONMENT
(84) Ground
(85) Other vehicle or object (specify)
(86) Unknown vehicle or object

NONCONTACT INJURY
(90) Fire in vehicle
(91) Flying glass
(92) Other noncontact injury source (specify):
(93) Air bag exhaust gases
(97) Injured, unknown source

INJURY SOURCE CONFIDENCE LEVEL

(1) Certain
(2) Probable
(3) Possible
(9) Unknown

DIRECT/INDIRECT INJURY

(1) Direct contact injury
(2) Indirect contact injury
(3) Noncontact injury
(7) Injured, unknown source

OCCUPANT INJURY CLASSIFICATION

Body Region

(1) Head
(2) Face
(3) Neck
(4) Thorax
(5) Abdomen
(6) Spine
(7) Upper Extremity
(8) Lower Extremity
(9) Unspecified

Type of Anatomic Structure

(1) Whole Area
(2) Vessels
(3) Nerves
(4) Organs (includes muscles/ligaments)
(5) Skeletal (includes joints)
(6) Head - LOC
(9) Skin

Specific Anatomic Structure

Whole Area
(02) Skin - Abrasion
(04) Skin - Contusion
(06) Skin - Laceration
(08) Skin - Avulsion
(10) Amputation
(20) Burn
(30) Crush
(40) Degloving
(50) Injury - NFS
(90) Trauma, other than mechanical

Head - LOC
(02) Length of LOC
(04, 06, 08) Level of Consciousness
(10) Concussion

Spine
(02) Cervical
(04) Thoracic
(06) Lumbar

Vessels, Nerves, Organs, Bones, Joints are assigned consecutive two digit numbers beginning with 02

Level of Injury

Specific injuries are assigned consecutive two-digit numbers beginning with 02.

To the extent possible, within the organizational framework of the AIS, 00 is assigned to an injury NFS as to severity or where only one injury is given in the dictionary for that anatomic structure. 99 is assigned to any injury NFS as to lesion or severity.

Abbreviated Injury Scale

(1) Minor injury
(2) Moderate injury
(3) Serious injury
(4) Severe injury
(5) Critical injury
(6) Maximum (untreatable)
(7) Injured, unknown severity

Aspect

(1) Right
(2) Left
(3) Bilateral
(4) Central
(5) Anterior
(6) Posterior
(7) Superior
(8) Inferior
(9) Unknown
(0) Whole region

U.S. Department of Transportation
National Highway Traffic Safety Administration

OCCUPANT ASSESSMENT FORM

Form Approved
O.M.B. No. 2127-0021

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number ____
2. Case Number - Stratum 93-08
3. Vehicle Number 01
4. Occupant Number 02

OCCUPANT'S CHARACTERISTICS

5. Occupant's Age 08
Code actual age at time of accident.
(00) Less than one year old (specify by month): _____
(97) 97 years and older
(99) Unknown

6. Occupant's Sex 2
(1) Male
(2) Female
(9) Unknown

7. Occupant's Height 999
Code actual height to the nearest centimeter.
(999) Unknown

___ inches X 2.54 = ___ centimeters

8. Occupant's Weight 029
Code actual weight to the nearest kilogram.
(999)Unknown

065 pounds X .4536 = 029 kilograms

9. Occupant's Role 2
(1) Driver
(2) Passenger
(9) Unknown

OCCUPANT'S SEATING

10. Occupant's Seat Position 13

Front Seat
(11) Left side
(12) Middle
(13) Right side
(14) Other (specify): _____
(15) On or in the lap of another occupant

Second Seat
(21) Left side
(22) Middle
(23) Right side
(24) Other (specify): _____
(25) On or in the lap of another occupant

Third Seat
(31) Left side
(32) Middle
(33) Right side
(34) Other (specify): _____
(35) On or in the lap of another occupant

Fourth Seat
(41) Left side
(42) Middle
(43) Right side
(44) Other (specify): _____
(45) On or in the lap of another occupant

(97) In or on unenclosed area
(98) Other seat (specify): _____
(99) Unknown

11. Occupant's Posture 9
(0) Normal posture

Abnormal posture
(1) Kneeling or standing on seat
(2) Lying on or across seat
(3) Kneeling, standing or sitting in front of seat
(4) Sitting sideways or turned to talk with another occupant or to look out a rear window
(5) Sitting on a console
(6) Lying back in a reclined seat position
(7) Bracing with feet or hands on a surface in front of seat
(8) Other abnormal posture (specify): _____
(9) Unknown

HS Form 433A (1/93)

EJECTION/ENTRAPMENT

12. Ejection 0
    (0) No ejection
    (1) Complete ejection
    (2) Partial ejection
    (3) Ejection, unknown degree
    (9) Unknown

13. Ejection Area 0
    (0) No ejection
    (1) Windshield
    (2) Left front
    (3) Right front
    (4) Left rear
    (5) Right rear
    (6) Rear
    (7) Roof
    (8) Other area (e.g., back of pickup, etc.) (specify):_____
    (9) Unknown

14. Ejection Medium 0
    (0) No ejection
    (1) Door/hatch/tailgate
    (2) Nonfixed roof structure
    (3) Fixed glazing
    (4) Nonfixed glazing (specify):
    _____
    (5) Integral structure
    (8) Other medium (specify):
    _____
    (9) Unknown

15. Medium Status (Immediately Prior To Impact) 0
    (0) No ejection
    (1) Open
    (2) Closed
    (3) Integral structure
    (9) Unknown

16. Entrapment 0
    (NOTE: Entrapped means that part of the person was in the vehicle and mechanically restrained; jammed doors and immobilizing injuries by themselves are not sufficient to constitute entrapment.)
    (0) Not entrapped
    (1) Entrapped
    (9) Unknown

RESTRAINT SYSTEM EVALUATION

17. Manual (Active) Belt System Availability 4
(0) None available
(1) Belt removed/destroyed
(2) Shoulder belt
(3) Lap belt
(4) Lap and shoulder belt
(5) Belt available—type unknown

Integral Belt Partially Destroyed
(6) Shoulder belt (lap belt destroyed/removed)
(7) Lap belt (shoulder belt destroyed/removed)

(8) Other belt (specify): _____
(9) Unknown

18. Manual (Active) Belt System Use 00
(00) None used, not available, or belt removed/destroyed
(01) Inoperative (specify): _____
(02) Shoulder belt
(03) Lap belt
(04) Lap and shoulder belt
(05) Belt used—type unknown
(08) Other belt used (specify): _____
(12) Shoulder belt used with child safety seat
(13) Lap belt used with child safety seat
(14) Lap and shoulder belt used with child safety seat
(15) Belt used with child safety seat—type unknown
(18) Other belt used with child safety seat (specify): _____
(99) Unknown if belt used

19. Proper Use of Manual (Active) Belts 0
(0) None used or not available
(1) Belt used properly
(2) Belt used properly with child safety seat

Belt Used Improperly
(3) Shoulder belt worn under arm
(4) Shoulder belt worn behind back or seat
(5) Belt worn around more than one person
(6) Lap belt worn on abdomen
(7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify): _____
(8) Other improper use of manual belt system (specify): _____
(9) Unknown

20. Manual (Active) Belt Failure Modes During Accident 0
(0) No manual belt used
(1) No manual belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify): _____
(6) Broken retractor
(7) Combination of above (specify): _____
(8) Other manual belt failure (specify): _____
(9) Unknown

21. Air Bag System Availability/Function 0
(0) Not equipped/not available
(1) Air bag

Non-functional
(2) Air bag disconnected (specify): _____
(3) Air bag not reinstalled
(9) Unknown

22. Air Bag System Deployment 0
(0) Not equipped/not available
(1) Air bag deployed during accident (as a result of impact)
(2) Air bag deployed inadvertently just prior to accident
(3) Air bag deployed, accident sequence undetermined
(4) Nondeployed
(5) Unknown if deployed
(6) Air bag deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
(9) Unknown

23. Are There Indications of Air Bag System Failure? 0
(0) Not equipped/not available
(1) No
(2) Yes (specify): _____
(9) Unknown

Note: See Variables 44 through 48 (Page 5) for Information on Automatic Belts

24. Police Reported Restraint Use 0
(0) None used
(1) Police did not indicate restraint use
(2) Shoulder belt
(3) Lap belt
(4) Lap and shoulder belt
(5) Belt used, type not specified
(6) Child safety seat
(7) Other or automatic restraint (specify): _____
(8) Restrained, type unknown
(9) Police indicated "unknown"

HEAD RESTRAINT AND SEAT EVALUATION

25. Head Restraint Type/Damage by Occupant at This Occupant Position: 3
    - (0) No head restraints
    - (1) Integral—no damage
    - (2) Integral—damaged during accident
    - (3) Adjustable—no damage
    - (4) Adjustable—damaged during accident
    - (5) Add-on—no damage
    - (6) Add-on—damaged during accident
    - (8) Other (specify): _____
    - (9) Unknown

26. Seat Type (this Occupant Position): 01
    - (00) Occupant not seated or no seat
    - (01) Bucket
    - (02) Bucket with folding back
    - (03) Bench
    - (04) Bench with separate back cushions
    - (05) Bench with folding back(s)
    - (06) Split bench with separate back cushions
    - (07) Split bench with folding back(s)
    - (08) Pedestal (i.e., column supported)
    - (09) Other seat type (specify): _____
    - (10) Box mounted seat (i.e., van type)
    - (99) Unknown

27. Seat Performance (this Occupant Position): 1
    - (0) Occupant not seated or no seat
    - (1) No seat performance failure(s)
    - (2) Seat adjusters failed
    - (3) Seat back folding locks or "seat back" failed
    - (4) Seat track/anchors failed
    - (5) Deformed by impact of occupant
    - (6) Deformed by passenger compartment intrusion (specify): _____
    - (7) Combination of above (specify): _____
    - (8) Other (specify): _____
    - (9) Unknown

CHILD SAFETY SEAT

28. Child Safety Seat Make/Model 000
(000) No child safety seat
Applicable codes are found in your NASS CDS Data Collection, Coding and Editing
(950) Built-in child safety seat
(997) Other make/model (specify):
_____
(998) Unknown make/model
(999) Unknown if child safety seat used

29. Type of Child Safety Seat 0
(0) No child safety seat
(1) Infant seat
(2) Toddler seat
(3) Convertible seat
(4) Booster seat
(7) Other type child safety seat (specify):
_____
(8) Unknown child safety seat type
(9) Unknown if child safety seat used

30. Child Safety Seat Orientation 00
(00) No child safety seat

Designed for Rear Facing for This Age/Weight
(01) Rear facing
(02) Forward facing
(08) Other orientation (specify):
_____
(09) Unknown orientation

Designed For Forward Facing for This Age/Weight
(11) Rear facing
(12) Forward facing
(18) Other orientation (specify):
_____
(19) Unknown orientation

Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight
(21) Rear facing
(22) Forward facing
(28) Other orientation (specify):
_____
(29) Unknown orientation

(99) Unknown if child safety seat used

31. Child Safety Seat Harness Usage 00

32. Child Safety Seat Shield Usage 00

33. Child Safety Seat Tether Usage 00

Note: Options below applicable to Variables OA31-OA33.
(00) No child safety seat

Not Designed With Harness/Shield/Tether
(01) After market harness/shield/tether added, not used
(02) After market harness/shield/tether used
(03) Child safety seat used, but no after market harness/shield/tether added
(09) Unknown if harness/shield/tether added or used

Designed With Harness/Shield/Tether
(11) Harness/shield/tether not used
(12) Harness/shield/tether used
(19) Unknown if harness/shield/tether used

Unknown If Designed With Harness/Shield/Tether
(21) Harness/shield/tether not used
(22) Harness/shield/tether used
(29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used

INJURY CONSEQUENCES

34. Injury Severity (Police Rating) 2

(0) O - No injury
(1) C - Possible injury
(2) B - Nonincapacitating injury
(3) A - Incapacitating injury
(4) K - Killed
(5) U - Injury, severity unknown
(6) Died prior to accident
(9) Unknown

35. Treatment - Mortality 4

(0) No treatment
(1) Fatal
(2) Fatal - ruled disease (specify):

_____

Nonfatal
(3) Hospitalization
(4) Transported and released
(5) Treatment at scene - nontransported
(6) Treatment later
(8) Treatment - other (specify):

_____
(9) Unknown

36. Type Of Medical Facility (for Initial Treatment) 2

(0) Not treated at a medical facility
(1) Trauma center
(2) Hospital
(3) Medical clinic
(4) Physician's office
(5) Treatment later at medical facility
(8) Other (specify):

_____
(9) Unknown

37. Hospital Stay 00

(00) Not Hospitalized
____Code the number of days (up through 60) that the occupant stayed in hospital.
(61) 61 days or more
(99) Unknown

38. Working Days Lost 97

____Code the number of days (up through 60) that the occupant lost from work due to the accident
(00) No working days lost
(61) 61 days or more
(62) Fatally injured
(97) Not working prior to accident
(99) Unknown

STOP - GO TO VARIABLE 44 ON PAGE 7

VARIABLES 39 THROUGH 43 ARE COMPLETED BY THE ZONE CENTER

39. Time to Death 00

____Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 +n up through 30 days = 60)
(00) Not fatal
(96) Fatal - ruled disease
(99) Unknown

40. 1st Medically Reported Cause of Death 00

41. 2nd Medically Reported Cause of Death 00

42. 3rd Medically Reported Cause of Death 00

____Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death
(00) Not fatal or no additional causes
(97) Other result (includes fatal ruled disease) (specify):

_____
(99) Unknown

43. Number of Recorded Injuries for This Occupant 05

____Code the actual number of injuries recorded for this occupant.
(00) No recorded injuries
(97) Injured, details unknown
(99) Unknown if injured

AUTOMATIC BELT SYSTEM

44. Automatic (Passive) Belt System Availability/ Function — 0
(0) Not equipped/not available
(1) 2 point automatic belts
(2) 3 point automatic belts
(3) Automatic belts - type unknown

Non-functional
(4) Automatic belts destroyed or rendered inoperative
(9) Unknown

45. Automatic (Passive) Belt System Use — 0
(0) Not equipped/not available/destroyed or rendered inoperative
(1) Automatic belt in use
(2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify):
(3) Automatic belt use unknown
(9) Unknown

46. Automatic (Passive) Belt System Type — 0
(0) Not equipped/not available
(1) Non-motorized system
(2) Motorized system
(9) Unknown

47. Proper Use of Automatic (Passive Belt System — 0
(0) Not equipped/not available/not used
(1) Automatic belt used properly
(2) Automatic belt used properly with child safety seat

Automatic Belt Used Improperly
(3) Automatic shoulder belt worn under arm
(4) Automatic shoulder belt worn behind back
(5) Automatic belt worn around more than one person
(6) Lap portion of automatic belt worn on abdomen
(7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify):
(8) Other improper use of automatic belt system (specify):
(9) Unknown

48. Automatic (Passive) Belt Failure Modes During Accident — 0
(0) Not equipped/not available/not in use
(1) No automatic belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify):
(6) Broken retractor
(7) Combination of above (specify):
(8) Other automatic belt failure (specify):
(9) Unknown

49. Seat Orientation (this Occupant Position) — 1
(0) Occupant not seated or no seat
(1) Forward facing seat
(2) Rear facing seat
(3) Side facing seat (inward)
(4) Side facing seat (outward)
(8) Other (specify):
(9) Unknown

STOP - VARIABLES 50 THROUGH 52 ARE COMPLETED BY THE ZONE CENTER

TRAUMA DATA

50. Glasgow Coma Scale (GCS) Score (at Medical Facility) — 15
(00) Not injured
(01) Injured - not treated at medical facility
(02) No GCS Score at medical facility
(03-15) Code the actual value of the initial GCS Score recorded at medical facility.
(97) Injured, details unknown
(99) Unknown if injured

51. Was the Occupant Given Blood? — 1
(1) No - blood not given
(2) Yes - blood given (specify units):
(9) Unknown if blood given

52. Arterial Blood Gases (ABG) – HCO_3 — 01
(00) Not injured
(01) Injured, ABGs not measured or reported
(02-50) Code the actual value of the HCO_3
(96) ABGs reported , HCO_3 unknown
(97) Injured, details unknown
(99) Unknown if injured

ARE ALL APPLICABLE MEDICAL RECORDS INCLUDED WITH INITIAL SUBMISSION? NO [ ] YES [ ]

UPDATE CANDIDATE? NO [ ] YES [ ]

U.S. Department of Transportation
National Highway Traffic Safety Administration

OCCUPANT INJURY FORM

Form Approved
O.M.B. No. 2127-0021
NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number		3. Vehicle Number	01
2. Case Number - Stratum	93-08	4. Occupant Number	02

INJURY DATA

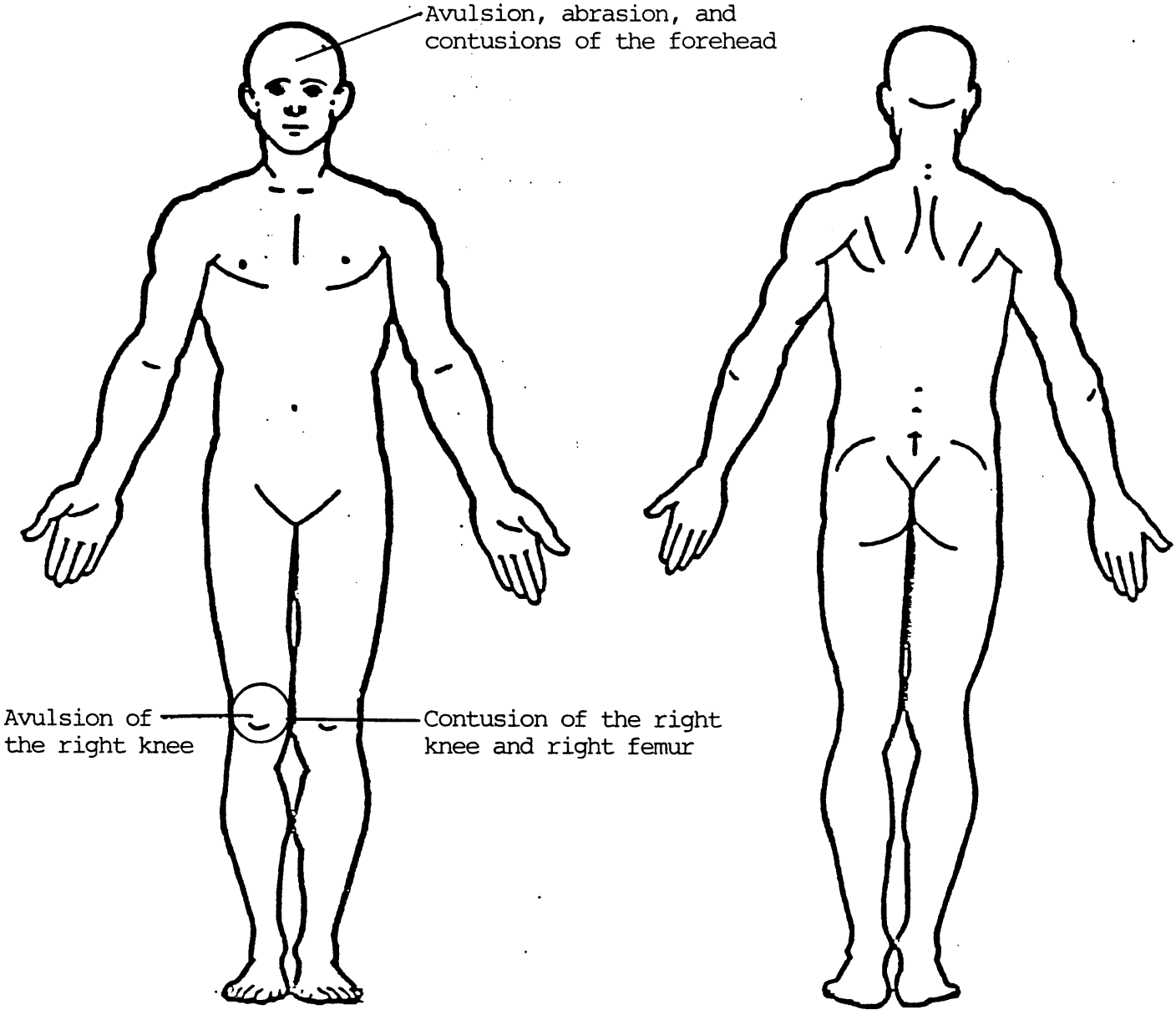
Record below the actual injuries sustained by this occupant that were identified from the official and unofficial data sources. Remember not to double count an injury just because it was identified from two different sources. If greater than ten injuries have been documented, encode the balance on the Occupant Injury Supplement.

	Source of Injury Data	O.I.C.-A.I.S Body Region	Type of Anatomic Structure	Specific Anatomic Structure	Level of Injury	A.I.S. Severity	Aspect	Injury Source	Injury Source Confidence Level	Direct/ Indirect Injury	Occupant Area Intrusion Number
Avulsion forehead 1st	5. 3	6. 2	7. 9	8. 08	9. 00	10. 1	11. 7	12. 01	13. 1	14. 1	15. 00
Contusion forehead 2nd	16. 3	17. 2	18. 9	19. 04	20. 02	21. 1	22. 7	23. 01	24. 1	25. 1	26. 00
Abrasion forehead 3rd	27. 3	28. 2	29. 9	30. 02	31. 02	32. 1	33. 7	34. 01	35. 1	36. 1	37. 00
Avulsion (R) knee 4th	38. 3	39. 8	40. 9	41. 08	42. 00	43. 1	44. 1	45. 11	46. 1	47. 1	48. 00
Contusion (R) knee & femur 5th	49. 3	50. 8	51. 9	52. 04	53. 02	54. 1	55. 1	56. 11	57. 1	58. 1	59. 00
6th	60.	61.	62.	63.	64.	65.	66.	67.	68.	69.	70.
7th	71.	72.	73.	74.	75.	76.	77.	78.	79.	80.	81.
8th	82.	83.	84.	85.	86.	87.	88.	89.	90.	91.	92.
9th	93.	94.	95.	96.	97.	98.	99.	100.	101.	102.	103.
10th	104.	105.	106.	107.	108.	109.	110.	111.	112.	113.	114.

HS Form 433B (1/93)

This report is authorized by P.L. 89-563, Title 1, Section 106, 108, and 112. While you are not required to respond, your cooperation is needed to make the results of this data collection effort comprehensive, accurate, and timely.

Right Front Occupant of the 1991 Chevrolet Corsica



SOURCE OF INJURY DATA

OFFICIAL
(1) Autopsy records with or without hospital/ medical records
(2) Hospital/medical records other than emergency room (e.g., discharge summary)
(3) Emergency room records only (including associated X-rays or other lab reports)
(4) Private physician, walk-in or emergency clinic

UNOFFICIAL
(5) Lay coroner report
(6) E.M.S. personnel
(7) Interviewee
(8) Other source (specify):

(9) Police

INJURY SOURCE

FRONT
(01) Windshield
(02) Mirror
(03) Sunvisor
(04) Steering wheel rim
(05) Steering wheel hub/spoke
(06) Steering wheel (combination of codes 04 and 05)
(07) Steering column, transmission selector lever, other attachment
(08) Add on equipment (e.g., CB, tape deck, air conditioner)
(09) Left instrument panel and below
(10) Center instrument panel and below
(11) Right instrument panel and below
(12) Glove compartment door
(13) Knee bolster
(14) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)
(15) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)
(16) Driver side air bag compartment cover
(17) Passenger side air bag compartment cover
(18) Windshield reinforced by exterior object (specify):
(19) Other front object (specify):

LEFT SIDE
(20) Left side interior surface, excluding hardware or armrests
(21) Left side hardware or armrest
(22) Left A (A1/A2)-pillar
(23) Left B-pillar
(24) Other left pillar (specify):
(25) Left side window glass or frame
(26) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
(27) Other left side object (specify):
(28) Left side window sill

RIGHT SIDE
(30) Right side interior surface, excluding hardware or armrests
(31) Right side hardware or armrest
(32) Right A (A1/A2)-pillar
(33) Right B-pillar
(34) Other right pillar (specify):
(35) Right side window glass or frame
(36) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
(37) Other right side object (specify):
(38) Right side window sill

INTERIOR
(40) Seat, back support
(41) Belt restraint webbing/buckle
(42) Belt restraint B-pillar or door frame attachment point
(43) Other restraint system component (specify):
(44) Head restraint system
(45) Air bag (use codes "16" and "17" for injuries sustained from air bag compartment covers)
(46) Other occupants (specify):
(47) Interior loose objects
(48) Child safety seat (specify):
(49) Other interior object (specify):

ROOF
(50) Front header
(51) Rear header
(52) Roof left side rail
(53) Roof right side rail
(54) Roof or convertible top

FLOOR
(56) Floor (including toe pan)
(57) Floor or console mounted transmission lever, including console
(58) Parking brake handle
(59) Foot controls including parking brake

REAR
(60) Backlight (rear window)
(61) Backlight storage rack, door, etc.
(62) Other rear object (specify):

EXTERIOR of OCCUPANT'S VEHICLE
(65) Hood
(66) Outside hardware (e.g., outside mirror, antenna)
(67) Other exterior surface or tires (specify):
(68) Unknown exterior objects

EXTERIOR OF OTHER MOTOR VEHICLE
(70) Front bumper
(71) Hood edge
(72) Other front of vehicle (specify):
(73) Hood
(74) Hood ornament
(75) Windshield, roof rail, A-pillar
(76) Side surface
(77) Side mirrors
(78) Other side protrusions (specify)
(79) Rear surface
(80) Undercarriage
(81) Tires and wheels
(82) Other exterior of other motor vehicle (specify):
(83) Unknown exterior of other motor vehicle

OTHER VEHICLE OR OBJECT IN THE ENVIRONMENT
(84) Ground
(85) Other vehicle or object (specify)
(86) Unknown vehicle or object

NONCONTACT INJURY
(90) Fire in vehicle
(91) Flying glass
(92) Other noncontact injury source (specify):
(93) Air bag exhaust gases
(97) Injured, unknown source

INJURY SOURCE CONFIDENCE LEVEL

(1) Certain
(2) Probable
(3) Possible
(9) Unknown

DIRECT/INDIRECT INJURY

(1) Direct contact injury
(2) Indirect contact injury
(3) Noncontact injury
(7) Injured, unknown source

OCCUPANT INJURY CLASSIFICATION

Body Region

(1) Head
(2) Face
(3) Neck
(4) Thorax
(5) Abdomen
(6) Spine
(7) Upper Extremity
(8) Lower Extremity
(9) Unspecified

Type of Anatomic Structure

(1) Whole Area
(2) Vessels
(3) Nerves
(4) Organs (includes muscles/ ligaments)
(5) Skeletal (includes joints)
(6) Head - LOC
(9) Skin

Specific Anatomic Structure

Whole Area
(02) Skin - Abrasion
(04) Skin - Contusion
(06) Skin - Laceration
(08) Skin - Avulsion
(10) Amputation
(20) Burn
(30) Crush
(40) Degloving
(50) Injury - NFS
(90) Trauma, other than mechanical

Head - LOC
(02) Length of LOC
(04, 06, 08) Level of Consciousness
(10) Concussion

Spine
(02) Cervical
(04) Thoracic
(06) Lumbar

Vessels, Nerves, Organs, Bones, Joints are assigned consecutive two digit numbers beginning with 02

Level of Injury

Specific injuries are assigned consecutive two-digit numbers beginning with 02.

To the extent possible, within the organizational framework of the AIS, 00 is assigned to an injury NFS as to severity or where only one injury is given in the dictionary for that anatomic structure. 99 is assigned to any injury NFS as to lesion or severity.

Abbreviated Injury Scale

(1) Minor injury
(2) Moderate injury
(3) Serious injury
(4) Severe injury
(5) Critical injury
(6) Maximum (untreatable)
(7) Injured, unknown severity

Aspect

(1) Right
(2) Left
(3) Bilateral
(4) Central
(5) Anterior
(6) Posterior
(7) Superior
(8) Inferior
(9) Unknown
(0) Whole region